Hunterian Lecture

ON

SOME CONGENITAL LESIONS OF THE SMALL INTESTINE.

THEIR ORIGIN AND CLINICAL BEARINGS.

Delivered before the Royal College of Surgeons of England on March 10th, 1915,

BY J. HOWELL EVANS, M.A., M.B., M.CH. OXON., F.R.C.S. ENG.,

HUNTERIAN PROFESSOR; SURGEON TO THE PRINCE OF WALES'S GENERAL HOSPITAL, TOTTENHAM, N., ETC.

MR. PRESIDENT AND GENTLEMEN,—Malformation is the term applied to any disturbance of the anatomical structure of the body which originates during intra-uterine life. From very early times such deviations from the normal have been studied. Teratology is no new science. Accurate observations by Caspar and Friederich Woolf, later endorsed and promulgated by Meckel, revolutionised the accepted significance of anomalies and malformations; many deviations in higher types may be regarded as the normal condition of lower forms. Nevertheless, antenatal pathology is to the majority of medical men an unknown land; to the student of embryology no more fascinating subject could be presented than the field of congenital lesions of the small intestine. To me antenatal pathology has been a subject of ever-deepening interest, because it is a subject of tremendous importance for the future of the race and the individual.

Antenatal pathology, being concerned with all the morbid processes which act upon the organism before birth and with the effects which they produce, may be considered from three points: 1. Fœtal pathology. 2. Embryonic pathology, teratology. There is good reason to believe that morbid agencies acting on the embryo produce not diseases but malformations. When the malformed embryo becomes a fœtus it carries its malformation with it. 3. Germinal pathology. The lines along which the future growth is to take place are nearly all fixed during the embryonic period—i.e., the first six weeks of intra-uterine life. Since the chief physiology of the embryo is organogenesis, or formation of parts and organs, so the chief effect of pathological processes in this embryonic or formative period is the malformation of its parts and organs.

CONSTRICTIONS, OCCLUSIONS, AND KINKS.

Several hypotheses have been put forward in explanation of atresiæ and stenoses of the small intestine—viz., (1) Intra-uterine peritonitis; (2) ulceration, ulcerative contraction; (3) pressure from tumours; (4) pressure from amniotic bands; (5) embolism or thrombosis of the superior mesenteric vessels; (6) inguinal hernia, volvulus, intussusception; (7) traction of the omphalomesenteric duct; (8) enlarged valvulæ conniventes; and (9) non-liquefaction and non-disappearance of the epithelium-occlusion and ingrowth of the mesenchyme.

One reason why the majority of these hypotheses give the impression that they are mere suppositions is probably to be found in the clinical factor which has played so great a part in the discussion of the etiology of congenital intestinal atresia, and which is found to-day overpowering the surgery of intestinal bands and kinks. It is inconceivable how peritonitis can give rise to formations of the anatomical structure as shown in these occlusions, &c. It is the distinguishing characteristic of all these malformations that the parts of the intestinal wall in relation with the peritoneum are unchanged, and that only the innermost layer is the seat of a pathological process.

During the nineteenth century another hypothesis, in which fœtal volvulus is considered to be the common etiological cause, appeared extensively in the literature of the subject. As in clinical matters innumerable the effect has been taken for the cause, so that any associated volvulus should be looked upon as secondary to the atresia and not the cause of it. Such a causation as fœtal intussusception, suggested by Chiari and advocated by Braun, presupposes intra-uterine mechanical occurrences different from those known to occur in extra-uterine life. Vascular irregularities of the intestine or vascular lesions arising from infections or intoxications, transmitted *viâ* the placenta, which have been favourably viewed as causes, are hardly likely to produce localised epithelial defects.

Credit is due to Bland-Sutton for drawing attention to the occurrence of malformations at the seat of "embryological events." This view offers a feasible explanation of "perivaterian diverticula" and of ileal constrictions or even occlusions within the zone of Meckel's diverticulum due to superinvolution of the omphalomesenteric duct, but not of those malformations close to the ileo-cæcal valve nor of multiple stenoses, nor yet of stenoses situated high up in the intestine.

The first to study the etiology of congenital atresia of the small intestine was Meckel; his views approach more closely to those now accepted than all the hypotheses of the past hundred years. Meckel introduced a normal theory of evolution as the basis of teratology, showing that several malformations are due to the arrested development of early embryonic stages; and he pronounced in principle the important law promulgated in later years by Haeckel as the "principle of biogenesis."

It is a curious fact that nearly one hundred years had elapsed before fresh researchers sought to take up the path so enthusiastically finger-posted by Meckel in order to solve the question of the etiology of congenital atresia of the intestine, and this is all the more astonishing when we consider how unscientific and inferior to Meckel's standard the hypotheses have been which have since prevailed. Few pathologists have worked at the etiology of atresiæ and kinks as falling within the evolutionary theory, and no one had filled up a gap in our knowledge of the development of the intestine until the further investigation and application by Forssner of the discovery made by Tandler.

The earliest stages only became the subject of exact investigation when Tandler commenced his work on the earliest development of the duodenum in 1900. Tandler's hypothesis, which has a totally different basis from any of the aforementioned views, may now be considered.

The Epithelium-Occlusion Theory.

Having found that a temporary epithelium-occlusion completely obliterating the lumen is a normal occurrence in the duodenum Tandler concluded that sometimes this embryonic atresia may persist and be found as a congenital occlusion or stenosis. In 1907 Forssner found that in early embryos the lumen of the duodenum was completely obliterated in places. This normal epithelium-occlusion of the duodenum disappears by a process

of disintegration, leading to a condition which presents the appearance of vacuolation as seen in Gruyère cheese. Forssner's opinion is that this epithelium-occlusion may take place throughout the small intestine. Further, when followed by an ingrowth of mesenchyme this will account for duplications, for single or multiple occlusions in those segments of the small intestine which enter neither into the duodenum nor the segment of Meckel. The lumen of the duodenum is finally formed by the fusion of the vacuoles, which were discovered and described independently by Kiebel and by Lewis and Thyng. Further, Tandler considered the cause of the occlusion was due to the resistance exerted upon the expanding epithelium by the surrounding mesenchyme.

The actual frequency of any internal congenital lesion cannot be computed at present because of the want of that "systematic examination of the still-born" which has been advocated by Bland-Sutton.

The embryonic epithelium-occlusion develops into a complete atresia by the mesenchyme growing into this epithelium before its disintegration has commenced, thereby making the simple epithelial septum a more permanent structure. The iris-like membrane may well originate in a similar manner because the connective tissue is incomplete or so weak that at one spot it yields to the pressure of accumulated material in the proximal segment; crescentic membranes may have a similar origin. By subsequent changes a thick obstruction may be attenuated so as to form a membrane or a stenosis may be converted into a valve.

[By a series of diagrams it was shown how the various primary types of atresia may be brought about after the mesenchyme ingrowth has taken place.]

EMBRYONIC FACTORS IN REGARD TO THE SMALL INTESTINE.

As we are considering lesions of embryonic origin it would be well, if time permitted, to detail the chronology of embryonic factors in connexion with the small intestine. Certain points, however, cannot be omitted.

The blastodermic vesicle, having been formed, is divided into two secondary cavities: (1) Intra-embryonic, the future intestinal canal; and (2) extra-embryonic, the umbilical vesicle. At first these cavities communicate by a wide gap which is converted into a short canal of small calibre—the vitelline duct. With the growth of the allantois the umbilical vesicle, owing to its diminished function, atrophies and becomes a mere vestige, whereas its attachment, broad at first, becomes reduced to a slender stalk. Such are the conditions present at the end of the first month. A little later the future umbilical cord consists of: (1) The amnion, which forms a covering containing (2) the vitelline group—(*a*) umbilical vesicle, (*b*) vitelline duct, and (*c*) omphalomesenteric vessels; and (3) the allantoic group—(*a*) allantoic pedicle, and (*b*) umbilical vessels. It is between the third and sixth week of intra-uterine life that the vitelline vesicle attains its greatest size. From the fourth month there ordinarily remains no trace of the primary communication between the intestinal canal and the vitelline sac.

A portion of the intestine normally projects like a hernia into the umbilical cord. As the liver grows and crowds upon the rapidly elongating intestine the intestine must escape, and the cœlomic space within the cord receives this "hernia funiculi umbilicalis physiologica." In this umbilical hernia, according to Mall, there are six primary coils which are as definite in the adult intestine as the convolutions are in the brain. It will probably be found that many of the kinks of the adult intestine are originally associated with these primary coils.

MECKEL'S DIVERTICULUM.

The diverticulum ilei, better known as the diverticulum of Meckel, is always single, having its situation upon the ileum, within a metre or so of the ileo-cæcal valve. In structure it corresponds to the ileum. Its calibre is generally equal to, occasionally smaller, but rarely larger than the calibre of the intestine above its point of origin. Though the diverticulum is usually found along the free border of the ileum, lateral and intramesenteric variations occur. The blood-supply is conducted along a special mesentery or mesodiverticulum ending in a small mass of fat or rarely in accessory pancreatic tissue. The implantation upon the ileum may be at a right angle or at an acute angle. Its shape may be cylindrical, conical, or rarely branched, whereas in length it varies from a nipple-like projection of less than an inch to eight inches or even more.

VESTIGIAL REMAINS OF THE VITELLINE DUCT OR OF ITS VASCULAR BUNDLE.

To J. F. Meckel of immortal fame belongs the credit of having recognised that the "diverticulum ilei" and its rarer congenital umbilical fistula are the remains of the embryonic omphalomesenteric duct, and that the bands which pass from the diverticulum or diverticular zone to the umbilicus are the persistent—patent or occluded—omphalomesenteric vessels. Dareste believed that if a sufficiently careful examination were made some slight trace of these vessels would always be found in the form of small filaments.

In animals, like the cat, which are born with a membrane over their eyes, these filaments are commonly found and are associated with the normal narrowing which occurs near the cæcum. Traces of these vessels are most frequently found in the pig, in which animal there is a corresponding greater frequency in the occurrence of the diverticulum of Meckel. Sometimes a considerable part of the persistent omphalomesenteric artery is found coursing beyond the gut and its diverticulum to the umbilicus. In 1883, it is of interest to note, Allen pointed out that remnants of both the omphalomesenteric artery and vein are normally found in the new-born of the cat, dog, and guinea-pig, in a strand of tissue which generally reaches the navel; these filaments or bands are always covered by peritoneum. Much has been written about the various bands and their inflammatory origin, but no inflammatory band is accompanied by vessels of congenital origin, neither is such a band found to be associated with a definite mesodiverticulum. (See Fig. 1.)

Apart from the interest arising out of the evolutionary point there is the immense practical importance attached to these bands because they are found in children otherwise normal and well-fitted to live and propagate, yet these malformations or anomalies may threaten or even destroy life by secondary occurrences.

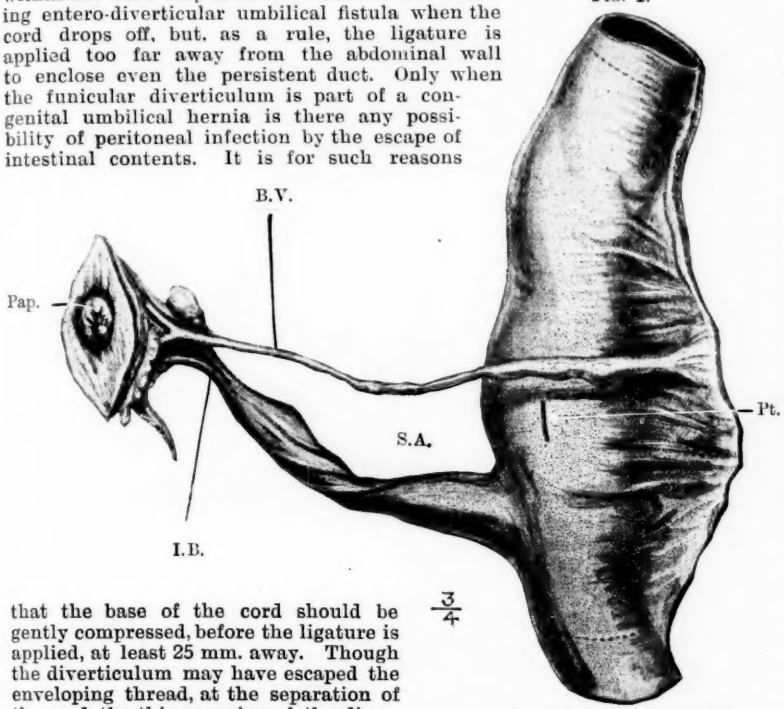
FISTULÆ OF PERSISTENT OMPHALOMESENTERIC DUCT.

Varieties of fistulæ of the persistent omphalomesenteric duct may be distinguished—namely, Series 1, simple cases; Series 2, cases with inversion and prolapse of the mucous membrane;

Series 3, cases of hernia accompanying inversion and prolapse of the mucous membrane; and Series 4, cases of fistula which have caused symptoms of strangulation.

If the omphalomesenteric canal is not obliterated, but continues to develop in its independent manner, it gradually takes on the more complete structure of the small intestine with which it genetically agrees; when the development of this duct attains its maximum it even penetrates into the umbilical cord. It can therefore occur that the ligature of the accoucheur enveloping the persistent duct within the cord may divide the duct with a resulting entero-diverticular umbilical fistula when the cord drops off, but, as a rule, the ligature is applied too far away from the abdominal wall to enclose even the persistent duct. Only when the funicular diverticulum is part of a congenital umbilical hernia is there any possibility of peritoneal infection by the escape of intestinal contents. It is for such reasons that the base of the cord should be gently compressed, before the ligature is applied, at least 25 mm. away. Though the diverticulum may have escaped the enveloping thread, at the separation of the cord the thin covering of the diverticulum will yield under the influence of the least straining or crying of the child.

FIG. 1.



Meckel's diverticulum fixed at umbilicus. The dotted lines indicate the strangulated gangrenous portion. Pap., Papilloma at the navel; the urachus is seen below. B.V., Band; vestigial remains of omphalomesenteric vessels. I.B., Impervious band of attachment. S.A., Strangulating arch. Pt., Point of puncture.

Occasionally small round papillomata, like raspberries, are seen in the umbilical pit; by an imprudent use of the knife, scissors, or caustic the small opening, probably invisible to the naked eye, becomes widened and the undoubted fistulous track is established.

Inversion and prolapse of the diverticular mucous membrane can occur spontaneously directly after the separation of the cord or at a later period, in which case the determining cause is not infrequently a violent attack of coughing, when there unexpectedly appears a tumour of varying size and shape with a fine opening, from which ooze a little mucus and intestinal matters. The umbilical projection behaves like the intussuscepted portion of an intestinal intussusception. When the diverticulum is short and wide, under the influence of increased pressure produced within the abdominal cavity, the juxta-diverticular loop of intestine is projected as through the opening of an artificial anus. It even occurs as a double evagination, the point of separation of the superior and inferior ends presenting itself as a spur between the two loops. The projected intestine becomes œdematous, whereas the contiguous serous surfaces become adherent, so that reduction to remove the impending complete intestinal obstruction is difficult.

DIVERTICULA.

The term "intestinal diverticulum" may be applied to any lateral evagination of the digestive tract. Since the researches of Meckel the name "true diverticulum" is applied to such as result from an embryonic evolutionary disorder; we shall need to differentiate this from another pathological production, the "false diverticulum."

True diverticula are characterised by their constant situation in (*a*) the duodenum and (*b*) the lower portion of the ileum. They consist anatomically of the three regular coats of the intestine with vessels which run in a mesentery. The duodenum is the seat of many developmental irregularities, such as transverse septa and longitudinal folds; it is likewise the situation where several important "embryological events" are crowded together. The embryology of the liver and pancreas demands close study—e.g., the manner in which the primary hepatic diverticulum or median cul-de-sac of the entodermal tube extends as a winged crescentic mass, throwing out extensions and early exhibiting a rounded subdivision (the future gall-bladder and cystic duct), whereas in the angle between it and the duodenum the ventral pancreas has already appeared. Simultaneously or possibly earlier the dorsal pancreas arises at a superior level. Even a paired ventral pancreas has been found in many vertebrates and reported in the human embryo; the presence of a pancreas in the duodenal wall—a cyst and consequent pouch—may be due to this double occurrence. In the duodenal loop congenital diverticula, invariably single, are occasionally found, and the presence of pancreatic tissue in their walls points forcibly to their origin as connected with the dorsal or ventral pancreatic rudiments. It seems well proven that diverticula of the second and third parts of the duodenum are congenital in origin, whereas in the first part three varieties of diverticula occur: (1) congenital; (2) acquired wide-mouth diverticulum of the duodenal vestibule; and (3) ulcer diverticulum.

In the jejunum no "embryological events" complicate the simple tubular structure. Accordingly the majority of jejunal diverticula are false or acquired diverticula. Nevertheless, as the epithelial lining precedes the development of the mesenchyme, so an embryonic irregularity of the epithelium may lead to a protrusion which never becomes covered by muscle tissue and consequently, by a progressive increase in size concomitant with the growth of the individual, this finally attains to a considerable size, when it is wrongly labelled "acquired." Observations applicable to the jejunum are likewise applicable to the ileum, in connexion with which the wider subject of Meckel's diverticulum will be considered.

CONDITIONS DUE TO PERSISTENT OMPHALO-MESENTERIC DUCT.

Of all the conditions which arise from the persistence of the omphalomesenteric duct or vascular bundle the most frequent is undoubtedly intestinal obstruction. This complication, which is one of the gravest, has long been known. Internal strangulation associated with a diverticular fistula has for its causation bands or loops to which I shall presently make further reference.

Intussusception of Meckel's diverticulum, when the diverticulum is fixed and patent at the umbilicus, is very rare. Nevertheless, even an instance of a retrograde diverticular intussusception—i.e., in which the distal end of the intestine became invaginated—has been placed on record. Also the diverticulum when free becomes inverted and, acting as a polypus, causes an intussusception, or the invagination of the intestine is produced in the proximity of a diverticulum without its walls being turned in.

Volvulus of the diverticulum of Meckel belongs to the category of curious pathological and rare occurrences. There are only four cases in literature, to which may be added the case now illustrated by means of the epidiascope.

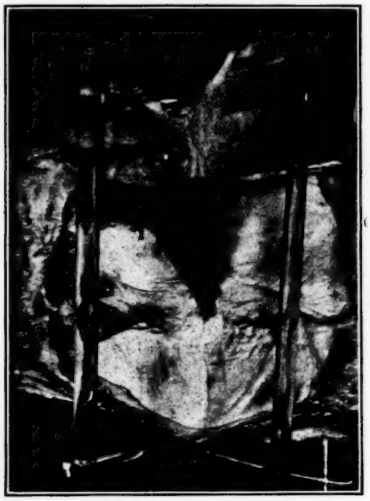
Hernia of the diverticulum of Meckel may be found at birth: firstly, as the only content of the hernial sac—in this exceptional occurrence its interest, as previously stated, is in connexion with the entero-umbilical fistula which may arise therefrom; or, secondly, associated with other portions of the intestine, when we have a matter of omphalocele—only observed after death or where life is impossible, and accordingly of no practical importance. The occurrence, later in life, of a hernia containing a diverticulum of Meckel is more frequent and of greater practical interest. The diverticulum when free is essentially mobile, and, being connected with the lower part of the ileum, is liable to become herniated. In 1700 and 1701 Littré and Méry communicated to the Academy of Sciences cases of diverticular hernia, which have since been denominated "hernia of Littré," and are most frequently met with in the hernial regions of the right side, though found from time to time in inguinal, scrotal, or femoral herniæ of the left side.

DIVERTICULAR STRANGULATION.

The diverticulum, being an integral part of the small intestine, is subject to the same affections, such as enteritis, ulceration, perforation, abscess, and peritonitis; but the particular condition is obstruction by a diverticular knot, by congenital or inflammatory bands leading to a compression. Diverticular strangulations therefore fall into two large classes: (1) When the diverticulum is fixed; and (2) when the diverticulum is free.

The diverticulum may be fixed to the mesentery, to the small intestine, to the cæcum and vermiform appendix, possibly to other viscera or the abdominal wall, but the immediate consideration deals with the diverticulum congenitally attached to the umbilicus directly or indirectly by bands which contain the vestigial remains of the omphalomesenteric vascular bundle. The production of strangulation may depend upon progressive constriction, upon a diverticular ring engaging one or more intestinal loops and acting like a true hernial orifice, upon a diverticular band attached to the

FIG. 2.



A view of the peritoneal surface of the anterior abdominal wall showing a diverticulum of Meckel herniated at the umbilicus. (Specimen in Musée Dupuytren, Paris.)

umbilicus, or upon free filamentous prolongations. A twist is produced towards the middle of the cord and forms a ring in the most relaxed part, a loop of intestine becomes engaged in the opening, and the collar now stretched will straighten out again and embrace it more tightly. At other times the intestinal loop will entwine itself around the diverticular filament by a twisting movement on its own axis.

Strangulation by Diverticular Knots.

Two conditions need to be considered in connexion with strangulation by knots when the diverticulum is free in the abdominal cavity: (1) The diverticulum remains free up to the occurrence of strangulation; and (2) the diverticulum contracts secondary adhesions to neighbouring organs. To become a cause of strangulation it is necessary that the diverticulum be of such a length as to allow it to encircle the intestine and find its distal extremity snared between its point of origin and the strangulated loop, while its free end must be sufficiently dilated not to slip readily from the grip which has been made upon it.

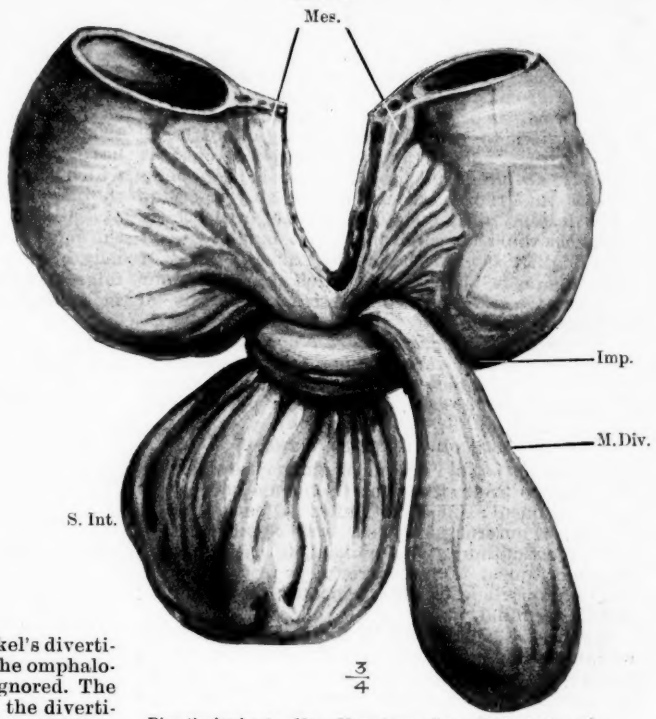
Occlusion by diverticular knots constitutes one of the most remarkable phenomena in abdominal pathology. Parise's (1851) description of two varieties of diverticular knots has become classical: (*a*) The knot with a single loop; and (*b*) the knot with a double loop.

As to (*a*), the diverticulum grasps the loop immediately above or below, turns around its pedicle, passes below its own point of origin, placing

itself between this and the intestine from which it arises, and lastly becomes dilated into an ampulla. (See Fig. 3.) Treves among others considers the terminal ampulla secondary, but its primary occurrence has been proven, and to Parise this is the indispensable requirement to hinder the slipping of the knot, so that the loop can only be disengaged by puncture of the diverticular ampulla.

In (*b*), the second variety of diverticular knot, two loops are found to be taken into its embrace—the one immediately above, and the other immediately below the origin of the diverticulum. Of these two loops one is indispensable, presenting the characteristics of the loop comprised in the simple diverticular knot, and is analogous to that of the simple knot called by Parise the "nodal loop." The presence of the secondary or accessory loop is understood by appreciating that the diverticulum had executed a complete rotation upon its axis before gripping the nodal loop. This Parise called the "rotatory loop."

FIG. 3.

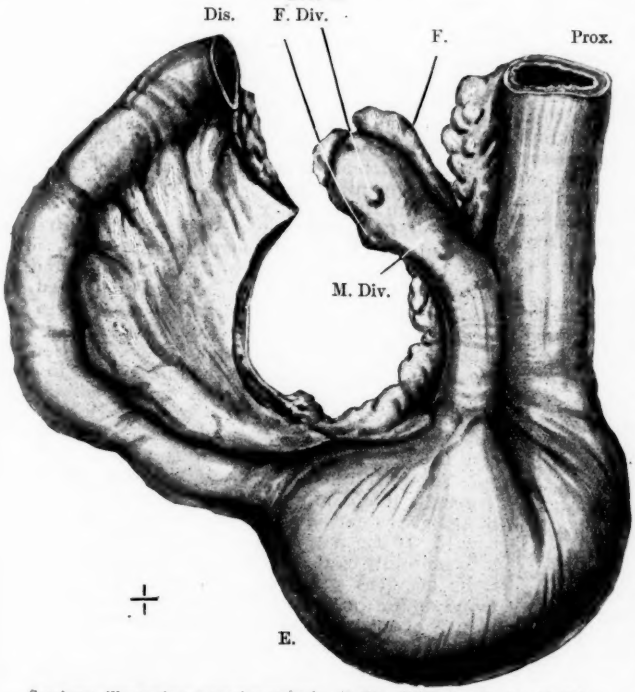


Diverticular knot. Mes., Mesentery. Imp., Implantation of Meckel's diverticulum. M. Div., Meckel's diverticulum with ampullary dilatation. S. Int., Strangulated intestine.

DIVERTICULITIS.

Diverticulitis or inflammation of Meckel's diverticulum—the post-embryonic remains of the omphalomesenteric duct—ought no longer to be ignored. The structures which enter into the wall of the diverticulum being identical with those of the small intestine and its evagination comparable to the appendix vermiformis, any analogy, becomes admissible, if established between the pathology peculiar to these two appendices—appendix ilei, appendix cæci.

FIG. 4.



Specimen illustrating extensive stenosis. F. Div., False diverticula. F, Fat. Prox., Proximal end of intestine with hypertrophied wall. Dis., Distal end of intestine with narrow lumen. M. Div., Meckel's diverticulum. E, Enterocyst.

The frequent occurrence, at the distal end of a true diverticulum, of false diverticula (see Fig. 4) whose walls are incomplete explains the ease with which a perforation may be produced and the rapid extension to the peritoneum of a diverticular infection. Similar anatomical dispositions, an analogous structure and a direct communication with the intestinal tract allow of inflammation in the appendix ilei in the same way as in the appendix cæci. Concretions or foreign bodies may provoke congestion of the mucous membrane and even produce erosion or obstruct the intestinal ostium; these may all in their turn be adjuvants, but the sole determining cause of diverticulitis is *infection*. The clinical features from the transformation of the diverticulum into a closed cavity in which is produced a focus of infection, with subsequent septic intoxication, or from the invasion of the diverticular wall proceeding to not only a peridiverticulitis but even to a widespread peritonitis, are comparable to those of an appendicular infection. The widely open ileal ostium, even if it renders a closed cavity more difficult, allows of the free access of parasites

and foreign bodies which play a certain part in the etiology of diverticulitis. The various pathological affections—e.g., tubercle and typhoid—which attack the ileum can extend to the diverticulum. The part played by mechanical circulatory troubles which are so often observed must not be neglected.

Diverticulitis presents no distinguishing clinical characteristic to guide the surgeon. As diverticulitis is little known, and as the phenomena it provokes are produced by other lesions, there is no wonder that the condition is invariably taken for other lesions until operation reveals or necropsy evidences the true condition. "As many cases of diverticulitis as come before us, so many errors of diagnosis made" is a remark which stigmatises our very imperfect ability to unerring diagnosis of intra-abdominal lesions.

[*A series of diagrams, drawings, and specimens were shown illustrating the chief points in connexion with the production of diverticulitis, peridiverticular abscess, diverticular pyo-stercoral fistulæ, &c.*]

CYSTS OF VITELLINE ORIGIN.

Cysts which are of vitelline origin may be classified according to their situation: (1) Intramesenteric or retroperitoneal; (2) diverticular, (*a*) enterocyst of Gfeller, (*b*) enterocyst of Roth, and (*c*) enterocyst of free diverticulum; (3) umbilical, (*a*) retroparietal or properitoneal, (*b*) intraparietal or intramuscular, and (*c*) properietal or subcutaneous; (4) funicular; and (5) terminal.

Beyond the hernial sac in the new-born, and yet within the dependent portion of the umbilical cord, small cysts have been found containing viscid fluid and proved to be distended unobliterated vitelline portions, to these I have applied the name of "funicular cysts." If a systematic examination of the cord and placenta of all still-born was instituted I doubt not but that many a funicular cyst as well as many a terminal cyst—i.e., of the remains of the yolk sac—would be revealed.

Umbilical cysts of vitelline origin comprise those varieties which are in close relation with the anterior abdominal wall. These cysts are very rare; not more than ten instances which have been authentically proven as having a definite vitelline origin have been recorded. These cysts represent the persistence of the distal portion of the omphalo-mesenteric duct with any filament or band which may connect its posterior wall to the small intestine or mesentery. The open cysts, in all probability, result from the necrosis of the extreme end of the diverticular remains.

In connexion with enterocystomata it is very interesting to observe that in birds after the yolk-sac has been drawn into the body-cavity its stalk remains in connexion with the intestine, forming an appendix like a small cæcum. This often persists throughout life in the Nidifugæ, and occasionally as in the Ratitæ retains some degenerated yolk but does not remain in communication with the ileum. In the Nidicolæ or Altrices it is generally absorbed before maturity. Though in the newly hatched chick the yolk-sac should atrophy completely it may form a cyst of considerable size, as is well illustrated by a specimen from an emu—in the Museum of this College—in which the pedicle is twisted. Some free diverticula show evidence of a progressive constriction which may ultimately lead to a retention cyst, but this variety is more liable to become the seat of a diverticulitis, as is also the case when the intestinal orifice is almost closed by a circular valve of reduplicated mucous membrane.

Intramesenteric cysts—cysts the origin of which is correctly ascribed to the vitelline duct—may be found attached to the intestine, to the distal border of the mesentery, or lying within the mesentery. The cyst wall includes all the usual layers of the intestinal wall. Little had been mentioned about the vitelline origin of these cysts until Dowel in 1900 reviewed the subject. Terrier and Lecène have collected 18 instances of juxta-intestinal cysts, which they regard as derived from the remains of the omphalomesenteric duct. Some intramesenteric cysts may be the outcome of other diverticula of the small intestine. Again, cysts in the mesentery may have originated behind the peritoneum and migrating forward between the layers of the mesentery come into contact with the intestine.

ON THE BACTERIAL FLORA OF WOUNDS PRODUCED DURING THE PRESENT WAR.[1]

BY LEONARD S. DUDGEON, F.R.C.P. LOND.;
A. D. GARDNER, M.A., D.M. OXON., F.R.C.S. ENG.;
AND
F. BAWTREE, M.R.C.S., L.R.C.P. LOND.
(*From the Department of Pathology, St. Thomas's Hospital.*)

IT is merely our intention in this communication to refer to the bacterial flora of wounds of various kinds produced during the present war. We have selected some hundred cases from our series of observations on superficial and deep injuries of the bones and soft parts produced by shell, shrapnel, and bullets. It is improbable that a selection of a larger number of cases would prove of greater value, as the bacterial flora falls into two important groups which are fully represented here. We merely recite these results with the hope that they may serve to emphasise the importance of certain bacteria in the varieties of infected wounds which surgeons and others in charge of such cases have to deal with. We have avoided any reference to treatment, as this is a question which is very much under discussion and largely depends on the bacteria which are present in the infected tissues.

We may mention at the outset that as the work was done in this country we have no records which actually refer to the type of bacteria found *directly* after injury. It would seem most probable, however, that the bacteriology of a recent wound is merely the bacteriology of manure implanted in damaged tissues. The fact which appears to be of greatest interest is the close similarity of the bacterial flora of these wounds to the infection of the tissues such as occurs among civilians in any large hospital. There is the closest similarity between the bacteriology of severe injuries of the soft parts produced by shrapnel and injuries in civil life infected with horse-dung.

In severe traumatism met with in this way there is usually infection of the damaged tissues with the B. aerogenes capsulatus, streptococci, and coliform bacilli. If the patient dies from a rapid infection it is generally caused by the gas gangrene bacillus; if he survives streptococci often take chief command of the infection. This is the bacteriological history of many of these shrapnel wounds. It has appeared to us from previous experience of gas

[1] The clinical material was derived from St. Thomas's Hospital, the 2nd London General Hospital, and from private sources. A grant has been made from the National Research Committee towards the expenses of the investigation on wound infection.

gangrene that the mere presence of the B. aerogenes capsulatus is not the important factor in a wound, but it is the presence of this organism in tissues which are under considerable increase of tension that is of such extreme importance, and experience gained during this investigation tends to confirm this view. Our cases have been selected so as to afford examples of the varieties of injuries, and to compare the bacteriological findings of the comparatively slight superficial lesions with the deep and severe wounds of bone and soft parts. The most important group of bacteria from many aspects is the anaerobic family, among which the bacillus of tetanus and the B. aerogenes capsulatus are the most important members.

It is the relation of these anaerobic bacteria to the diseases to which they give rise that is of greatest importance to the surgeon. It is for that reason that we have considered separately the survival of the anaerobic group of bacteria in the tissues to which we shall refer in some detail. No account will be given of the technique employed, but in every instance a complete detailed examination was made. It will suffice to emphasise the value of the liquid egg and veal medium of Besredka, for it is impossible to over-estimate the advantages this medium offers both for the cultivation of the aerobes and anaerobes; in fact, without it we should have failed on many occasions to detect the anaerobic bacteria in the infected tissues.

Pathogenic Anaerobes.

No.	Length of history.	Other bacteria present.	Anaerobe.
1	3 days.	B. coli.	B. tetani.
2	14 ,,	Staph. albus.	,,
3	9 ,,	B. coli; Diphtheroid bacillus.	,,
4	13 ,,	Staphylococcus; Unclassified bacillus.	,,
5	11 ,,	Streptococcus; B. coli; Staphylococcus; Diphtheroid bacillus.	,,
6	49 ,,	B. coli.	,,
7	7 ,,	,,	,,
8	65 ,,	B. proteus.	,,
9	6 ,,	Streptococcus; Staph. aureus.	B. tetani and B. aerogenes capsulatus.
10	28 ,,	Streptococcus; Staphylococcus; Unclassified bacillus.	,,
11	11 ,,	Staph. aureus; Diphtheroid bacillus.	,,
12	2 ,,	None.	B. aerogenes capsulatus.
13	5 ,,	Staph. aureus; B. proteus.	,,
14	8 ,,	Staph. albus; Unclassified bacillus.	,,
15	9 ,,	Staph. albus.	,,
16	11 ,,	Staphylococcus.	,,
17	22 ,,	Staph. aureus.	,,
18	6 ,,	Staph. albus.	,,
19	5 ,,	B. coli.	,,
20	26 ,,	Streptococcus; Staphylococcus; Diphtheroid bacillus.	,,
21	14 ,,	Staph. aureus; Unclassified bacillus.	,,

Wounds in which pathogenic anaerobes were found.—Twenty-one wounds in all yielded cultures either of B. tetani or of B. aerogenes capsulatus, or of both. The majority of these wounds entailed considerable damage to the tissues, but they were of all varieties, ranging from a trivial skin-wound to a severe and extensive compound fracture of a long bone—in fact, there was no special feature of clinical interest to suggest the importance of the bacteriological findings.

The table shows that with a single exception every wound was infected with aerobic bacteria in association with the anaerobes. The exceptional case was that of a superficial shrapnel wound in the neighbourhood of the knee-joint; the joint cavity was infected, although the synovial membrane was intact. From the pus which was evacuated from the interior of the joint a pure culture of B. aerogenes capsulatus was obtained, and here it was evidently behaving as a simple pyogenic bacterium. The after-history of this case gave nothing to suggest to those in charge that they had been dealing with suppuration produced by the common organism of gas gangrene. Guinea-pigs inoculated with a culture of this organism died within 24 hours from a rapidly spreading gangrene of the tissues.

In every other case we have found either a staphylococcus, B. coli, or B. proteus in the wound. The frequency with which B. coli appears with B. tetani suggests that its presence may be particularly favourable for the survival of this anaerobe. Of the 11 patients in whose wounds the bacillus of tetanus was found nine had been treated prophylactically with tetanus antitoxin at an early date, and at no time did any one of these exhibit any symptoms of tetanus. Two had not received any prophylactic injection, and of these one developed the disease[2] and the other did not. The last-mentioned case serves to demonstrate that a wound may become infected with B. tetani without tetanus resulting, and that quite apart from the question of antitoxin. There is, however, no reason to doubt that the prophylactic injection of antitoxin has been the means of saving the majority of these patients from the most serious disease arising from wound infection.

It is therefore of considerable importance to realise that a wounded man may be acting as a carrier of these dangerous bacilli for at least *two months* after the date of the wound, and probably for a much longer period, without any reason on clinical grounds to suggest that these bacteria are present in the tissues.

Whatever the nature of the wound, whether it be slight or severe, without a careful bacteriological investigation it is impossible to be sure there are no tetanus spores lurking in its depths. B. aerogenes capsulatus was found on 13 occasions. Although its presence was not confined to any single type of lesion, yet we gradually learned to suspect certain varieties of wounds of harbouring it. Deep wounds with considerable damage to soft parts or bone, with a profuse and perhaps offensive discharge, are the most liable to yield cultures of this organism. It seems certain that some special conditions must be present in order that B. aerogenes capsulatus may give rise to gas gangrene, and that in the majority of infected wounds it is either rapidly eliminated or it settles down to a purely pyogenic or even saprophytic life. One would naturally expect to find an organism of this nature more frequently in recent than in old wounds, and on the whole we have found this to be so. Nevertheless, the table shows that the bacillus is able to survive at least four weeks from the date of the infection.

The facts here presented concerning these two potentially virulent and highly resistant spore-bearing organisms make it undoubtedly very advisable that special precautions should be taken

[2] Wounded at Ypres on Nov. 16th, and received antitoxin at onset of tetanus on Nov. 28th with good result.

in the sterilising of surgical instruments which have been used in operating upon wounds. Occasions occur when instruments are merely "introduced" to the boiling water, but our bacteriological findings are sufficient evidence of the danger that may arise, more especially with the massing together of wounded which must take place owing to the present circumstances. In one instance a culture of the B. aerogenes capsulatus was obtained from a suppurating wound, but the bacteriological findings were not taken into account. The limb was amputated, but death occurred from rapidly spreading gas gangrene within 30 hours.

The bacillus coli and unclassified coliform bacilli.—In 11 cases a true colon bacillus was isolated from the tissues and gave the recognised tests for this group of bacteria, while in 15 instances coliform bacilli were cultivated. Full cultural tests were applied in every instance, but the results were too varied to assist us in classifying these bacteria. In many instances these coliform bacilli were tested on guinea-pigs or mice by subcutaneous and intraperitoneal inoculation, but no fatal result ensued. Now as to the importance of these bacteria in the tissues. Although the B. coli is capable of exciting a rapidly spreading infection of the peritoneum, yet a similar infection of the connective tissue is uncommon. Experience teaches us that a rapidly spreading infection of the tissues which resents active interference is generally a streptococcal infection in spite of the presence of the bacillus coli or a coliform bacillus in the discharge, but owing to the difficulty in isolating streptococci under such circumstances the presence of these bacteria may not always be recognised. We have no record of an actively spreading infection of the tissues or severe irritable wound from which colon bacilli or coliform bacilli have been obtained in pure culture, but always in association with streptococci, which corresponds with infective lesions of a similar type met with in ordinary practice.

It may be of interest to mention that the B. coli and coliform bacilli were cultivated from lesions widely different clinically, such as a surface granulating wound of the hand with little discharge, and a foul suppurating and deep tissue infection with copious exudate. In two instances out of the total of 26 a colon bacilli was present in pure culture, and in each case the discharge was slight in amount and the temperature was normal.

B. proteus and B. pyocyaneus.—True proteus bacilli were isolated from 5 cases and an atypical proteus bacillus from 2. These cases were all examples of chronic tissue infection with sinus formation and abundance of purulent discharge. The B. pyocyaneus was found in 4 cases, all essentially chronic, with copious discharge from deep wounds, exactly the type of lesion this organism produces among civilians.

Streptococci.—Streptococci were cultivated from 41 of this 100 cases, and in all but a few instances the strain was isolated and put to a considerable number of tests. They were found with about equal frequency in recent wounds (1–2 weeks) and in wounds of longer standing (3–10 weeks). Some 30 strains were grown in the customary series of sugar-containing media in order to test their powers of fermentation, and, if possible, to group them according to some commonly used system of nomenclature, such as that of Gordon. But these tests were found to be of no assistance either towards classification or towards estimation of the virulence of the cocci. Numerous strains were also tested for hæmolysis and for pathogenicity to mice. In the hæmolytic test we made use mainly of a fluid medium consisting of citrated broth to which a little fresh sterile human blood had been added. Occasionally a blood-agar slope or plate was primarily employed, but if this test proved negative it was always repeated with the fluid medium, which contained human red cells and plasma, since this method was found to be more reliable.

Of 19 strains thus investigated 16 were hæmolytic and 3 were not. Nine of the hæmolytic strains were injected intraperitoneally into mice, with the result that 7 were pathogenic and 2 harmless. Of the 3 non-hæmolytic strains, 2 were tested upon mice, with one positive and one negative result. The strain which failed to hæmolyse, but was pathogenic to the mouse, was isolated from a brain lesion due to shrapnel. The patient was operated upon and developed diffuse meningitis shortly after the operation; a streptococcus (presumably the same strain) was grown from the cerebro-spinal fluid, and now proved to be both hæmolytic and pathogenic to mice.

Thus, on the whole, the power of hæmolysing human blood tends to run parallel with that of causing acute disease in the mouse. But neither of these phenomena appears to throw much light upon the question of actual virulence to the human being. It is quite common to find strongly hæmolytic streptococci in trivial healing wounds which are giving rise to no appreciable constitutional disturbance. Therefore one may conclude that a hæmolytic streptococcus although highly virulent may be held in check in the tissues from which it was cultivated.

These wound streptococci often appear to possess only a low degree of virulence, yet it is well to remember that they are capable of undergoing a sudden great increase of virulence if the barriers of protection which the body has set up be broken down by an over-zealous operator or even by quite insignificant manipulation.

The diphtheroid group.—Diphtheroid bacilli were met with on 15 occasions, but clinically the sources from which the bacilli were cultivated were various. Some were granulating wounds, others were deep sinuses—in fact, no special type of wound in particular. These bacilli could not be credited as the direct cause of the infection, although indirectly they may play an important part. In some instances they grew more abundantly anaerobically than in an atmosphere of oxygen, and examples were met with of an orange growth on agar similar to the staphylococcus aureus. Morphological characters were variable, but the most striking type presented the well-known zebra markings.

Staphylococci.—The orange and white staphylococci were cultivated from wounds on numerous occasions, but no further reference need be made to these bacteria on the present occasion.

The striking feature of these results is the persistence of the dangerous anaerobes in the tissues for as long as 65 days from the date of the original injury. It is true that in most cases neither tetanus nor gas gangrene developed, but in one instance a rapidly fatal infection from the bacillus aerogenes capsulatus occurred after an operation.

From a bacteriological aspect it is surprising that the anaerobes do not flourish to a greater extent than even our records show, as every requisite for anaerobic life is present. There is in a deep wound dead tissue, sufficient moisture,

and utter darkness owing to the abundance of surgical dressings, while in addition aerobic bacteria which are usually present utilise the remainder of the oxygen. The number of wounded in hospitals and institutions of various kinds at the present time is sufficient reason that every possible advantage that bacteriology offers should be taken so as to avoid the spread of infection from patient to patient, or even in the same patient, quite apart from the actual treatment of wounds by various measures.

THE NAVAL MEDICAL COMMITTEE AND WOUNDS IN WAR: A CRITICISM.[1]

BY J. GODFREY SANER, M.C. CANTAB., F.R.C.S. ENG.,

RESIDENT SURGICAL OFFICER, GUY'S HOSPITAL; LATE CHIRURGIEN-EN-CHEF, THE BELGIAN FIELD HOSPITAL.

THE committee consisting of Sir W. Watson Cheyne, Bart., Fleet-Surgeon P. W. Bassett-Smith, C.B., R.N., and Mr. Arthur Edmunds, M.S. Lond., F.R.C.S. Eng., after experiments carried out on dead material, guinea-pigs, and one man, have issued "borsal" and cresol paste to the navy and the army with the expressed hope that the wounds for a certain period will be treated in the manner suggested in their instructions. The committee, realising the grave responsibility they have assumed in advocating the general use of borsal, appeal to the profession to examine carefully the method and results before passing judgment. In response to this appeal, having seen the results of the treatment in just twice the amount of clinical material at the disposal of the committee, I propose to offer some criticisms on the suggested method.

Sir W. Watson Cheyne had not then been to the front as he tells us, and said that he had no opportunity of testing borsal because "there have been no naval wounded for several weeks, and dockyard and ship accidents have been much fewer than they were." He quotes in all four cases, but one only by the combined borsal and cresol method, and I think it is worth while going over these, as it is really from the results obtained that the committee have advised the issue of the "borsal powder and cresol paste," which, I believe, is now carried on every ship and is being issued to the army.

CASE A.—One was a compound wound of the interphalangeal joint of the thumb. It was a machinery accident with much soiling of the wound. A 20 per cent. carbolic acid paste was at once squeezed into the wound from a paint tube, and from time to time some more was applied on the surface. The interesting point of this case was that although the skin had never been cleaned up or the wound cleaned out, and although practically the entire terminal phalanx was dead, yet for ten days there was no local or general disturbance and no fever, no pain, swelling, or suppuration. On the tenth day the surgeon cleaned it out and applied ordinary dressings. Two days later sepsis appeared, with suppuration up the tendon sheath, just what ought to have been present ten days earlier.

The argument is that there was no suppuration until the tenth day, the infection being kept down by the application of 20 per cent. carbolic paste. Clinically, one knows that machinery accidents very often do not go septic. The sepsis appearing in the tendon sheaths on the tenth day rather suggests that the drainage had been obstructed by the paste, and the tissues were therefore finally attacked. The result of the treatment was death of the phalanx and suppurative tenosynovitis.

CASE B.—Another case was an accidental pistol wound of the buttock with fairly large entrance and exit openings. Carbolic acid paste (20 per cent.) was freely introduced and no inflammation occurred along the track of the wound, and ultimately there was only a small granulating sore at one of the openings, which healed in a few days.

The primary union of clean bullet wounds treated on ordinary surgical lines is proverbial.

CASE C.—A third case was a bad scalp wound with denuded bone which was filled up with a 20 per cent. carbolic acid paste. Here, also, there was no disturbance, and after ten days the small sore which remained was dressed with weak boracic ointment.

That there should have been any sore at the end of ten days is surprising, considering how well scalp wounds heal when treated on general surgical lines. A machinery accident, an accidental pistol wound, and a scalp wound treated at once are in no way comparable to the bulk of the wounds met with in the field.

CASE D.—On the skin cresol is rather more irritating than carbolic acid. As to the action of the paste in wounds we have had only one really test case, that of a man who shot himself in the face and head; the bullet entered just in front of the mastoid process, and ran upwards and forwards and came out at the inner side of the forehead near the middle line. In its course it broke up the upper jaw and the malar bone, passed through the eyeball, tearing it to tatters, and smashed up the lower and anterior walls of the frontal sinus. The fracture of the frontal bone extended into the nose, where also the dura mater was torn, but there were no cerebral symptoms at first. The remains of the eyeball were removed and also one small, quite loose fragment of bone from the supra-orbital region. The 20 per cent. cresol paste was then freely introduced into the whole track and cavity of the wound. The patient lived four days and died of his intracranial injuries, but during that time there was no inflammation or sloughing or suppuration from the wounds; they were quite aseptic, and no bacteria could be found in pieces of blood clot examined on the second and third days. On the second day a cultivation was made from the end of the drainage-tube where it projected beyond the wound, and only six colonies of cocci were obtained. Naturally one would have expected some growth from that part, and it is surprising that it was so little. The patient developed symptoms of meningitis and died on the fourth day. On post-mortem examination suppurative meningitis was found, but there was no suppuration anywhere in the external wound where the paste had been introduced; indeed, although it communicated with the tear in the dura mater, the blood clot was lying in it without any decomposition.

This case was seen and treated by members of the committee. It approximates to the cases less heavily soiled with dirt and filth seen at the front, and yet what result is obtained? The external wound is clean, and suppurative meningitis occurs. I do not for a moment suggest that cases treated by other means do not develop suppurative meningitis, but surely such a case, which remains clean on the surface and septic in the deep and less accessible parts, is not one on which to base a line of treatment contrary to all modern experience and teaching. Further, the treatment in the cases reviewed has not been so successful as to warrant the broadcast issue of borsal powder and cresol paste *with instructions*.

Clinically, the idea that the paste will penetrate to any depth along a bullet wound through muscles is unsound. It is much more likely to drive on ahead any organisms which are at the entrance and which, pent up in a cavity deep in the tissues, will produce a severe suppurative process. If the

[1] Published in the Journal of the Royal Naval Medical Service.

committee could see some of the wounds, torn and ragged inside, plastered with dirt and pieces of cloth, they would, I hope, shrink in horror from the idea of sealing up this glorious cultivation medium with a greasy plug.

Dr. Willenborg, of the Pasteur Institute in Paris, visited me during April at the Belgian field hospital. He has a roving commission from the French Government to investigate gas gangrene. He told me that the outstanding fact he had learnt which was of value in the treatment of shell wounds and the prevention of gas gangrene was the necessity for thorough cleansing and laying open of the wound—in fact, adequate drainage.

The committee's experiments on guinea-pigs were invariably fatal if there had been any delay in the application of the paste, and in the field, under modern conditions, there must be many hours' delay before treatment. To quote again from the paper:—

> Assuming that radiation takes place *in all directions from the centre*, naturally the further away from that centre the more dilute will be the antiseptic substance.

This assumption is made from experiments with inert substances. It does not consider the living tissue or the serum and the various currents and counter currents produced by the breaking down of cells during the process of repair. Again:

> As a matter of fact, the soiling of wounds with earth is not likely to extend to any great depth, and the borsal, powdered over a wound, especially if it is well open and the bleeding has stopped, will probably overtake the severe infection, while the septic organisms carried on further will be dealt with by the cresol.

The soiling of wounds with earth is found to extend to a very great depth indeed. During the winter the uniforms were caked in mud, and large pieces of cloth were driven into the tissues by bullets and portions of high-explosive shell. In the summer it will be found that the fabric is infiltrated with the dust of battle.

> At any rate, the growth of organisms will be inhibited over a large area, till the patient reaches the dressing station, where the wound can be opened up and more thoroughly attended to.

This may be true in wounds of the saucer type. To make such a statement about deep lacerated wounds with a narrow opening shows unfamiliarity with the conditions existing. The natural out-pouring of serum from the lacerated surface will increase the tension deep in the wound, as the cork of borsal effectually prevents drainage. This bottling procedure is carefully insisted upon in the instructions issued.

The inhibition of growth on the surface of the wound does not matter in the least if, in the end, the depths of the wound are still infected. If members of the committee have tried to inject thoroughly a sinus of some standing with bismuth paste they will know how difficult it is, even in expert hands, and this thorough medication of the wound with borsal or cresol paste must perforce be left to the men in the fighting line if it is to be done at once. If it is to be carried out some hours later, when the infection has got a good hold, I cannot follow the surgery which advocates plugging up the main drain.

To quote further:—

> When the patient arrives at the advanced dressing station the treatment depends on circumstances. 1. If a large number of wounded have to be attended to, patients who have been treated in the above manner can wait, unless a good many hours have elapsed since the injury. In that case the orderlies should inject a little more paste into the wounds and powder them and apply a fresh antiseptic dressing while the patient waits his turn.

The presence of pus, cellulitis, or gas gangrene is not considered. The orderly would, in all probability, not recognise the conditions and simply increase the tension deep in the wound. He would report the case as being dressed, and, from the clearing hospital or dressing station, the man would be sent down to the base, incubating organisms in a carefully plugged living test-tube.

> 2. If it is a large or complicated wound—e.g., a compound fracture—it will be well in the first instance to clean and disinfect the skin, preferably with 1-20 carbolic lotion, then wash out the wound with peroxide of hydrogen and 1-20 carbolic lotion, remove pieces of clothing or accessible pieces of shell, snip away any tags of tissue and arrest bleeding. The wound being dried and held open, it can now be powdered with borsal and some cresol paste left in various parts of the wound. If it is widely open it may be well to put a few interrupted sutures in to bring the edges somewhat together and prevent the escape of the antiseptic and finally apply antiseptic dressings.

The first part of the instructions it might be possible to carry out in a clearing hospital. Certainly, in their entirety, they are impossible in the trenches and in the dressing stations behind the firing line. The second part is simply a résumé of the cleansing of any wound, and as it is obviously meant for qualified men its inclusion seems to be unnecessary. The stitching up of the wound at the end of 24–48 hours, which is commonly the time before the above treatment could be employed, is contrary to all experience gained during this and other wars. Whenever this has been done, almost without exception, the results have been disastrous.

> 3. If it is not a large wound, if the clot seems solid and it has been well powdered and plenty of paste introduced into it in the first instance, it is quite possible that sepsis may not occur, and if that seems likely all that need be done would be to squeeze a little fresh paste and dust some more borsal powder over the surface and the skin around and apply a fresh antiseptic dressing. These wounds will probably not require further dressing till they arrive at the Base Hospital.

If the clot seems solid and not septic, surely it is nature's dressing and should not be disturbed; it is the first process in primary union. If it is disturbed and the surface organisms squeezed into it, it becomes infected, as it is not claimed that borsal destroys the organisms but simply inhibits their growth. The use of the words "quite possible" in the first sentence and "probably" in the second, show that the surmise is entirely theoretical. The issue of the paste, therefore, is an experiment on a large scale based on evidence which is unsound from the bacteriological, pathological, and surgical point of view.

Finally, I quote two cases which are now in Guy's Hospital in the Officers' Section.

CASE 1. *Bullet wound through thigh on May 15th.*—The wound was through the muscles; entrance small; exit somewhat larger. Patient had field dressing applied. May 17th: Borsal powder and cresol paste injected (30 hours after injury). 18th: Operated on at Boulogne. Six incisions made in the thigh, which was very septic, and large tubes put in. 21st: Admitted to Guy's Hospital. Cellulitis was still present, and the patient running a hectic temperature. Further incisions were made and khaki cloth removed. 25th: On fomentations, &c., condition is improving.

CASE 2. *Bullet wound through the leg just above the tendo Achillis on May 16th.*—Seven hours later borsal powder and cresol paste were applied. May 18th: Operated on at Boulogne; eight incisions were made in the leg for cellulitis. 21st: Admitted to Guy's, and it was found necessary to make further incisions. 25th: There seemed a tendency for still further spread, and it may be necessary to operate again.

Both cases quoted are a type of bullet wound which generally gives little trouble and seldom requires this amount of surgical interference.

Sir W. Watson Cheyne, in a letter on May 22nd in the *British Medical Journal*, writes that: "The question of the exact method of dealing with wounds in man was left for further study, and our recommendations were merely tentative and open to alteration as experience indicated." However, the committee were so satisfied with the result of treatment in Case D that the Navy and the Army have been served with the powder and paste. He says that the whole aim of the research was to find a means to delay the growth of bacteria. The substance, cresol paste, did do this on non-living tissue, such as blood-clot, and to a less extent on animals. In its application to the wounds in war the committee recommend practically closing up the septic wounds with this substance, and from the success achieved when cresol was used by the committee, I cannot see their justification in transgressing one of the golden rules of surgery with regard to the drainage of wounds.

The committee assumed that the wound would be opened up, the pastes which had been introduced removed, and the wound thoroughly disinfected and drainage provided, &c. The actual cleansing of these wounds after the use of borsal is no easy matter. A great deal of hot water has to be used before the last trace of the black greasy pus can be removed.

Mr. Arthur Edmunds, who has been associated with the committee in their work, has gone to the Dardanelles. He is evidently armed with the paste, and may proceed to treat the wounds on the lines indicated in the paper. His previous experience has been that of the committee. I hope he will be guided by the conditions found in the field rather than on the assumptions of the laboratory.

THE DIVERSITY OF OPINION CONCERNING THE DIAGNOSIS OF TUBERCULOSIS,

WITH SPECIAL REFERENCE TO THE EXAMINATION OF CONTACTS.

BY G. H. DART, M.D., M.R.C.P. EDIN., D.P.H. CANTAB.,

TUBERCULOSIS OFFICER AND ACTING MEDICAL OFFICER OF HEALTH, METROPOLITAN BOROUGH OF GREENWICH.

Now that tuberculosis schemes are coming into operation, all matters concerning diagnosis are of exceptional importance from the point of view of preventive as well as of clinical medicine. The personal element will always enter largely into the diagnosis of difficult cases, but a certain standard concerning fundamentals should certainly be adopted in order to render statistics comparable and permit of correct deductions from statements presented in reports.

The report of the medical officer of the Local Government Board points out remarkable variations in the proportion of notifications to deaths in the returns from individual administrative counties. This may be due merely to failure to notify or to the vexed question of diagnosis. Dr. Newsholme is driven to the consideration of death-rates for his statistics, as he considers that notification of new cases cannot be used as a trustworthy index of the relative prevalence of tuberculosis in different areas.

The reports of the medical officer of the Board of Education illustrate the same lack of uniformity in the consideration of this disease on the part of school medical officers. One of the most remarkable instances of what might be termed the lack of a common basis of diagnosis is given in the 1910 report as follows: "In Worcestershire, for instance, owing to the fact that one of the assistant medical officers diagnosed pulmonary tuberculosis in about 15 per cent. of the children examined, the percentage of cases discovered is 4·18. On the other hand, in Hertfordshire, out of a total of 12,772 children examined, one case of tuberculosis only was discovered." It is, in fact, the diagnosis in children that presents the greatest problem owing to the character of the infection and the tendency to appearance and disappearance of physical signs.

The remarkable prevalence of tuberculosis in children is an established fact. Dr. C. Riviere's figures from THE LANCET[1] are of particular interest as they refer to children who died from some acute disease (e.g., diphtheria) which was not tuberculosis.

	Council-man.	Baginsky.	Heller.	Ham-burgher.	Gang-hofer.
Number of necropsies	220	866	714	150	972
Number tuberculous	35	144	140	32	252
Percentage tuberculous	16	18	20	21	25·9

Newsholme,[2] in the section referring to inaccurate diagnosis in children, quotes striking figures from Coates and Landouzy on the question of the prevalence of tuberculosis in children, and also in relation to *deaths*, states that "in children the term broncho-pneumonia not infrequently conceals acute tuberculosis, especially when the 'broncho-pneumonia' occurs after imperfect recovery from such diseases as whooping-cough and measles." This is particularly important as referring to deaths; there is apparently always less reluctance to consider a case with a bad prognosis, tuberculous. In fact, it is to be feared that a recovery is often taken as proof in itself that the case in question was not tuberculous.

It is evident that in the examination of contacts two very important factors bearing on diagnosis are, generally speaking, constant—i.e., family history and exposure to infection. The examination of contacts should therefore show less striking differences in the percentages of positive diagnosis than any other systematic series of examinations, allowing, of course, for the smallness of the numbers. Dispensary reports from all over the country show some considerably different results in this respect, but it will be sufficient for purposes of illustration to quote from some metropolitan reports.

	Contacts.	Found tuberculous.	Per-centage.
Paddington and Kensington	920	108	11
Wandsworth	541	54	9
Fulham	668	116	17
Woolwich	666	243	36
Lambeth	306	46	15
Bermondsey	281	85	29
Poplar	668	76	11
Hampstead	204	48	23

At Greenwich a total of 622 contacts were examined by three medical officers. Contacts were found tuberculous at the rate of 10 per cent., 5 per cent., and 18 per cent. respectively.

[1] THE LANCET, vol. i., 1910, pp. 156, 185.
[2] The Prevention of Tuberculosis.

There appears to be a tendency to think of tuberculosis only as a condition of local injury, as an infection either of the lymphatic glands or the lungs, or the bones, or other definite parts of the body, and to consider it only from the point of view of the local results. Tuberculosis implies the poisoning of the system with a powerful nervous and muscular poison. The systemic changes are not merely those resulting from underfeeding or malnutrition, or what is generally understood by that term, but the signs of actual toxæmic poisoning. The indications of this are many, as, for example, the flabbiness of the skeletal muscles and at the same time their irritability, the thinning of the trapezius and deltoid muscles, giving the scraggy appearance and sharpening of the point of the shoulder, are particularly noticeable; the dyspepsia, anæmia, and diarrhœa, all of which may be present together; the temperature and character of the pulse; the glandular changes, not necessarily the gross glandular changes due to bacterial invasion of the glands themselves, but the pinhead multiple "micro-adenopathy." These are all manifestations of this powerful neuro-muscular poison.

A systemic poison which can produce such changes should certainly affect also the elastic and muscular tissue of the respiratory apparatus, especially the tissue of a lung exposed to a particular concentration of the morbid products through the lymphatic circulation. There is some reason to suppose that even in purely hilus tuberculosis tidal respiration and percussion note and quality and character of the breath sounds are affected at the apex, perhaps in the same way that loss of "brightening" occurs on X ray examination, though mechanical obstruction must not be forgotten.

Sir Robert Philip has compared tuberculosis with syphilis in this respect of systemic poisoning. The first infection takes place (for the purpose of illustration, by way of the tonsil in the "extra-tonsillar" lymphatic gland), is followed by lymphatic spread and glandular infection, followed again by widespread and various signs of systemic poisoning. It is surely misleading to divide the disease in one's mind as on a notification form into pulmonary or glandular; glandular with attention to glands, only from the point of view of possible caseation or condition of enlargement, and pulmonary with attention to pulmonary physical signs alone. There must be a tendency to do so, because when a report on a child is requested, it is, of course, particularly or altogether a report on pulmonary physical signs which is wanted, and although there may be every other evidence of tuberculosis, pulmonary physical signs may be slight or absent in the earliest stages. Unless, therefore, extreme care is taken, the difficulty of demonstration of pulmonary physical signs in children, and in some cases the evanescent character of the signs, will lead to considerable understatement of the prevalence of tuberculosis.

Then, again, what should be the proof that enlarged glands are in one case tuberculous and in another non-tuberculous—local conditions are misleading. A considerable number of children with an obvious cause for enlarged cervical glands, such as carious teeth, &c., suffer from tuberculosis (as proved by subsequent caseation) which may, of course, in some cases be a superadded condition. Therefore, to exclude as non-tuberculous all those children who show an obvious cause for the glandular enlargement will be to exclude a number of tuberculous. On the other hand, to notify all children with glandular enlargement as tuberculous would be ridiculous. There are also exceptions to every rule, and if a tuberculous infection becomes shut off and its products are unable to pass into the circulation, systemic evidences will not present themselves.

This is, of course, the difference between the infected person—which includes most of the population and must include all contacts—and the person who is really suffering from tuberculosis. There is also an obvious difference between the single, or infrequent, slight infection of the average person and the repeated massive infection which usually falls to the lot of the majority of contacts. Disputed points about which clinicians like Strümpell, Cornet, Fox, and Osler differ from such others as Aufrecht, Krönig, Lees, Riviere, and Goldsheider do not affect the broad aspect of the disease, and it is impossible that these questions could have produced the wide variation in diagnosis referred to. By no means do I wish to imply that the strictest attention should not be paid to the very earliest, slightest, and doubtful or debateable pulmonary signs, but, in fact, to point out that a phenomenon which, taken by itself, may seem bald and unconvincing, may assume a very different aspect when considered in conjunction with a history of infection and the signs and symptoms of widespread neuro-muscular poisoning, so obviously present in many cases classed as suspects or non-tuberculous. And also that many cases, including those (such as broncho-pneumonic and bronchitic) which from the multitude of their physical signs may present extreme difficulty of diagnosis, may have considerable light thrown on them when considered from the point of view of not merely a collection of pulmonary physical signs alone, but of what we know of the disease itself and of the power for evil of its morbid products on the entire system.

If the statistics concerning prevalence of infection are reliable, the probability is that a considerable number of children classed as suspects, or merely ill-nourished, are in reality tuberculous, though this is probably not of much account, as the majority of such children obtain as suspects all that is necessary for complete recovery. An important point, however, is that the first person applying for medical advice is not necessarily the most advanced case in a family with several tuberculous members, and failure to recognise the disease in the first case may mean that the infecting case is not discovered.

As notification is the first step to further investigation, the state of affairs with regard to diagnosis and subsequent notification pointed out by the medical officer of the Local Government Board evidently calls for careful consideration.

Greenwich, S.E.

THE HOME TREATMENT OF SCARLET FEVER.—Mr. V. Gray Maitland, medical officer of health of Nuneaton, in his annual report, after mentioning that the severe epidemic of scarlet fever had practically died out, expresses his conviction that cases treated at home did better and suffered fewer complications than those treated in the isolation hospital, particularly during an epidemic, when the wards were more or less constantly full. The home treatment of scarlet fever as practised in Nuneaton, the results of which were extremely satisfactory, meant that the medical man who notified a case and wisbed for the services of a nurse could have any treatment he ordered carried out by the nurse. Should the medical man leave the case entirely in the nurse's hands and cease to visit the case himself, the responsibility rested solely upon him, and not upon the borough council.

SOME PRINCIPLES OF DIETETICS.

BY J. SIM WALLACE, D.Sc., M.D. GLASG., L.D.S.

SOME fifteen years ago the study of the etiology of dental caries led me to conclude that there must be something radically wrong with dietetic habits which were current in civilised communities. Further, it became impressed upon me that the dietetic precepts emanating from the highest quarters were possibly on the whole productive of harm rather than good, for it was by no means apparent that dental caries and other diseases resulting from bad dietetic habits were less common among the children of professors of physiology than among the children of the relatively ignorant poor. In fact, in time it became evident that the teeth of the children of poor peasants and even of those living in slums were rather less ravaged by caries than were the teeth of those who were supposed to be enlightened in the science of dietetics. Naturally I tried to inform myself in the subject. Among other things I bought a book on "Food and the Principles of Dietetics," and therein found quite a mass of information on the chemistry of foods and certain physiological details associated therewith, but I found remarkably little about the principles of dietetics. It is not, therefore, my intention to treat the subject as it is treated in books on dietetics, but rather to indicate that the principles of dietetics branch naturally from the tree of knowledge and bear fruit which is, or may become, of great value. I shall endeavour to state some principles of dietetics and add a few words to each of them.

The first principle I would refer to is that the kind of food for which man is adapted is the same in all essentials as that on which he has subsisted for countless generations. This principle is lacking in direct practical utility, first, because we may not know exactly the kind of food on which primitive man and his ancestors did subsist; secondly, because we are not all agreed with regard to what are the essential elements of food; and thirdly, because man has introduced methods of preparation of foods which, though in some cases they may destroy or impair certain essential qualities, so far improve others that a reversion to primitive foods would be a retrograde step. The value of constantly bearing in mind this important principle, however, will be seen from some of the others which follow, for without this one a certain guide for the search for others would be lacking.

The next principle to which attention may be briefly directed is that the anatomy of the organs of digestion indicates the type of food which is most generally suitable for the animal under consideration. This has long been recognised by those who have concerned themselves with palæontological zoology. It has, however, been most completely disregarded by medical experts, who have occupied themselves with framing a pap dietary for young children which still too generally holds sway. It is now many years since the dental profession recognised that the complete temporary dentition indicated that the most suitable diet for a child was not pap, but should be of such a nature that the teeth and jaws would require to be used. Moreover, we recognised still further that the coming into position of the milk teeth indicated how the transition from the purely milk diet to the solid and varied diet suitable for children with a complete dentition should be brought about.

A correlated principle which we have to note is that the physiology of the organs of digestion indicates to some extent the type of food suitable for man. To begin with, however, what is the outstanding physiological process for which the first part of the alimentary canal is adapted? The incisor teeth incise or cut off portions of food, and the molars crush, tear, or physically disintegrate it, while at the same time the saliva and mucus are secreted. The muscles of mastication concerned with the closing of the mouth are physiologically adapted for the exercise of enormous pressure in order to disintegrate the food, while the muscles which open the mouth are relatively weak. If the food were intended to be swallowed without undergoing physical disintegration in the mouth there would be no need for the large muscles and elaborate physiological coördination which at present (necessarily) exist. As far as the digestion of food is concerned, the obvious inference is that with regard to the mouth and teeth the physical disintegration of the food is practically its one and only function, notwithstanding the fact that we may have books written on "The Work of the Digestive Glands" in which the salivary glands are largely referred to. Do not let us be befooled into believing that the physiological *raison d'être* of the salivary glands is solely or even primarily for the sake of digesting food. The salivary glands exist and function for the purpose of facilitating the movements of the mouth and food, for facilitating its disintegration, for facilitating deglutition, and for helping to clean it out of the mouth as rapidly as possible after the disintegration of the food is sufficiently advanced. We have heard a great deal about the digestion of starch by the ptyalin, and although the amount is very trivial it was well dinned into us that the function of the ptyalin was to digest starch (for nutritional purposes). Why a copious flow of saliva is poured out when sugar is taken into the mouth did not seem to suggest the idea that the function of the saliva was to clear substances out of the mouth which might be or become harmful to the teeth and mucous membranes during or after mastication. So again, we were taught that acid vegetable foods gave rise to a copious flow of alkaline saliva rich in ptyalin, but physiologists were silent with regard to the why of the ptyalin in this case. That the flow of alkaline saliva was to neutralise the acid was indicated, but that the saliva similarly became alkaline on eating meat was not mentioned and the rationale of such alkalinity was not indicated. So, too, we were led by physiologists to believe that the reason why ptyalin did not exist in the saliva of an infant till it had reached about the sixth month was that up to this age the child should not get starch in its dietary. No doubt an infant should not get starch in its dietary before this age, but why a ferment from the pancreas capable of digesting starch before this age existed was not told to us. The fact that the appearance of ptyalin in the saliva synchronised with the cutting of the teeth and that the saliva exists chiefly for the physiological cleanliness of the mouth and for the protection and preservation of the teeth was apparently never dreamt of. Although, then, the physiological reactions of the saliva to food show us clearly that they are adapted chiefly for facilitating disintegration of food and deglutition and to get rid of certain substances commonly associated with foods which are or might become injurious to the mouth and teeth, it would be a mistake to argue that whatsoever

stimulates the salivary glands should necessarily be regarded as specially desirable food. Rather should we surmise that in foods which excite a great flow of saliva there may be an element of danger, if for any reason the glands were not capable of responding adequately to the stimulus, or if the food were of such a nature as to hamper the saliva in its attempt to get it out of the mouth. There is, then, an element of danger in food which contains sugar in greater proportion than it exists in vegetable foods as presented in nature, and the physiology of the glands of oral hygiene indicates that sweets, bread and jam, bread and marmalade, and the like should not be eaten at the end of or between meals.

I have not referred to mucus. Its function is largely that of lubrication, but it is also instrumental in maintaining the hygiene of the mouth, and when thoroughly incorporated with the food during mastication it no doubt facilitates the action of the gastric juice when the food reaches the stomach. Possibly this explains to some extent why, as Dr. Francis D. Boyd has ably shown, digestion is so very much better when the food requires mastication than when it is given in the form of pap.

Here it may be noted that the various principles of dietetics cannot be altogether isolated from one another, or perhaps we should say that various principles serve to reinforce each other, so it need hardly surprise us that our fourth principle has been adumbrated in what has already been said. This fourth principle is most important not only because of its practical application, but also because it has hitherto been completely overlooked by physiologists. I refer to the principle that the food should be of such a nature or the meal so arranged that the mouth and teeth will be left physiologically clean at the end of the meal. When once this principle is stated no one can deny it, for it is simply absurd to say that meals should leave the mouth in an unhygienic state. The wholesale destruction by caries of the teeth in civilised communities, together with the equally wholesale destruction of the gums and alveolar processes resulting from oral malhygiene, should have been sufficient to call attention to the importance of this principle, and except among those physiologists and medical men who consider that the mouth and teeth are outside their domain, the principle is now fairly recognised amongst the educated. Since the teeth of animals and primitive man are kept in a hygienic state by their foods, it is a simple guide to say that food in its natural condition will, if taken at the end of a meal, leave the mouth clean. For various reasons I have drawn attention to the value of uncooked fruit for this purpose, and need only add here that unless we are to revert to primitive foods and eschew all the benefits which accrue from the preparation and cooking of foods, we must above all other principles insist on this one.

Moreover, recognition that food should be of such a nature that the mouth and teeth should be left in a hygienic state leads by extension to the idea that the whole alimentary canal should be left in a similar hygienic state, and this suggests a still wider field for investigation. I have read that the alimentary canal of children nowadays is little more than a series of pathological specimens, and although this may be an exaggerated way of putting it, there is too much truth in the remark; and so long as the craze for nutrition and calorie values is considered to the exclusion of the hygienic value of food what truth there is in the observation will remain.

"Science knows no geographical boundaries," it only recognises the narrower limits of its own departments. Being under less than no obligation, however, to follow decadent scientific methods, we may be permitted to transgress the boundaries of our specialty and deal briefly with a few principles which have little or nothing to do with the mouth and teeth. They have, however, to do with the hygiene of the alimentary canal. As overeating is a common cause of alimentary malhygiene I shall deal with a few principles associated therewith. The first I shall mention is well known but seldom brought into force as it should be among the civilised. It is simply that "Hunger is the best sauce." Throughout the whole course of evolution our progenitors must often have been hungry, sometimes very, very hungry. If hunger had incapacitated them for food when it was found there would have been little chance for them surviving; fortunately it had quite the contrary effect. Pawlow has shown by approved experimental methods that digestion goes on best when associated with hunger, and in a general way we all know that it is so. Nevertheless I have practically never seen an emaciated child with an unhygienic digestive tract treated by keeping food away from it, and the unhygienic state of the alimentary canal is never given a chance of becoming hygienic.

This leads us to state another principle—namely, that tempting the palate habitually is contrary to the dictates of evolution. As the importance of economy in nutrition has throughout all ages only been transcended by the importance of getting enough we should recognise that a flagging appetite is a signal that amply sufficient has been consumed. We may be assured that as in past ages unlimited supplies of food were seldom available, as much as possible would be eaten of any food which contained the elements for supplying immediate needs and a reasonable reserve for the immediate future without special temptation. One might have thought that a scientist who recognised that hunger was the best sauce might also have recognised this principle. Nevertheless we read in Pawlow's work on the digestive glands: "The custom of the chief meal of the day also corresponds with our physiological results. After this or that *hors d'œuvre*, perhaps also with a liqueur of brandy (especially customary in Russia), both of which are designed to awaken the appetite, the repast proper begins, and, in the majority of cases, with something hot, consisting mostly of meat broth (*bouillon*, different soups, and so on). After this comes the really nourishing food—meat of different kinds served in various ways, or, in the case of poorer people, stews made with vegetables, and therefore rich in carbohydrate material. This sequence of foods, from the standpoint of physiology, is quite rational. Meat broth, as we have already seen, is an important chemical excitant of gastric secretion. An attempt is therefore made in two ways to secure a free secretion of gastric juice to act on the chief food: first, in the excitement of the appetite juice by the *hors d'œuvre*; and, secondly, in the promotion of the flow by the action of the meat broth." It would appear from this quotation and other similar statements that no effort either in the way of chemical or psychic excitant has to

be spared to secure the activity of what seems to be presumed to be an otherwise insufficient organ for carrying on the work of digestion. Pawlow's ideas are interesting and instructive; unfortunately, however, they are not principles of dietetics: rather are they principles of gluttony. Much that is written about the arrangement of the meal from the glutton's point of view may be interpreted quite differently and more correctly. The meat or vegetable broth which so frequently commences a meal may have little or nothing to do with stimulating digestion; they may have chiefly to do with economy. A proportion of the available nutriment in yesterday's joint might be lost if the remains were not boiled and the resulting "stock" used on the following day. The words "stock" and "*pot au feu*" both suggest this interpretation. Pawlow follows what I have already quoted with the sentence: "The usual termination of the repast is also, from the physiological standpoint, easy to be understood. The chief meal is generally ended with something sweet, and everybody knows that sweets are pleasant. The meaning of this is easy to guess. The repast, begun with pleasure, consequent on the pressing need for food, must also, notwithstanding the stilling of hunger, be terminated with an agreeable sensation." Let us consider what is meant by "something sweet." Jam rolls, bread-and-honey, chocolate, &c., may all be recognised as something sweet or sweets, but yet, as it appears to me, his meaning in saying that the meal should be terminated by something sweet, yet which does not burden the work of the alimentary canal at this time, is not at all clear. It is quite obscure unless (which may be his meaning) we assume that sweet things do not burden digestion at this stage. But this would be quite erroneous. He refers also to acids, and attempts to show how acids one way and another assist digestion. He never appears to have dreamed that acids in foods were concerned with dental hygiene; in fact, the whole of his arguments indicate a conviction in the insufficiency of man's organs of digestion except when they are excited, whetted, and tempted by all sorts of psychic and chemical stimulant, and the philosophy of the correct termination of the meal is overlooked.

That the gustatory secretions should be stimulated at the end of a meal, not by sweets but by food of a natural, hygienic, or detergent nature, is evident to all who admit the principle that the mouth should be left physiologically clean. Now what does so most effectually? Fresh fruit certainly does; not only the dilute sugars but the acids, the aromatic and even the acrid substance in the fruit do so most effectually. Fruit contains but little nutriment, and its real value is hygienic and not nutritive—much less is it a digestive tonic. Foods in the form of sweets, jam rolls, bread and marmalade, chocolate, &c., are to be condemned absolutely as meal terminals, as their effect is the opposite of fruit, which leaves the mouth in a hygienic state. Read in the light of my theory I believe Pawlow's experiments are most instructive. Read in the darkness of the old craze for nutrition they are misleading, dangerous, and contradictory.

The amount of food eaten should not be regulated by principles of gluttony: it should be regulated indirectly by recognising the principles of dietetics. That the palate is a useful guide is not to be denied, and when it is given a chance to act it acts usefully. If the palate is given the opportunity to discover and appreciate the quality and quantity of the food which passes it, as when the food requires to be disintegrated and retained in the mouth for a time, then it will be a useful guide. If, on the other hand, food is given in the form of pap and is slipped past the palate without mastication, as it so often is in the feeding of young children, and geese which are being stuffed for *pâté de foie gras*, then the palate is but an imperfect guide both as regards quality and quantity. Nevertheless, let me say that instinct, custom, and common sense are not invariably to be relied upon. A new environment may come into existence relatively suddenly and the safeguards of necessary limitations existing in the aboriginal environment may disappear. Thus, for example, a relatively unlimited supply of carbohydrate foods may now be easily procured; in addition to this a gratuitous advocacy in influential quarters of the things most to be guarded against may usurp the place of natural limitations, as, for example, the advocacy of highly nutritious foods, the value of sugar as an economical foodstuff or as a proteid sparer, the advocacy of jam and marmalade instead of butter on bread, or the extolling of cocoa and chocolate instead of more hygienic and cheaper foods. It is for reasons such as these that we must have something more than instinct and custom. We need the principles of dietetics and a touch of common sense to be able to coördinate and make practical use of them.

With regard to a balanced dietary little need be said; the principles which regulate this too are similar to those which regulate the amount. Like the amount it is very variable, and if the organism, when restraints such as nature presents are imposed, is not fit to seek for and procure the balanced dietary required, no artificial endeavours will be likely to avail in the long run. The possibility of getting a fair choice and variety is of course necessary. Variety, however, should not simply be with regard to proteid, carbohydrate, fat, &c.; it should include also *uncooked* food. Fresh fruit, vegetables, and gustatory stimulants without regard to calories at all are necessary. Throughout the whole course of evolution uncooked food was consumed, and we certainly have not as yet sufficient evidence to make us disregard the probability that certain essential qualities are destroyed by cooking. Possibly the craze for having everything made easily digestible and sterilised before it enters the mouth accounts for much dyspepsia, and may explain why uncooked milk though full of germs, is such a useful drug in restoring what is sometimes necessary for healthy digestion.

I indicated above that restrictions on eating certain foods should be imposed to compensate for the lost restraints which nature imposed. If restraints in the nature of taxation for revenue on consuming alcohol, tea, and coffee are conducive to more good than evil, then surely the taxation of sugar, sweets, chocolate, and cocoa might for similar reasons be imposed, for, as Sir William Osler has maintained, decayed teeth are responsible for greater harm to the community than alcohol. Surely the proportion of misery which alcohol causes is not greater than the amount of dental troubles brought on by the eating of sweets. Indeed, Dr. Wheatley's statistics with regard to sweet-eating and caries clearly show this to be the case.

A further principle to which we may refer is that economy in diet is beneficial physically and morally. A long sermon might be preached on this subject; it is not, however, my intention to do so, firstly because it would be more instructive to hear how it is done from a housewife with a family, let us say, of five children and a husband with 30s. a week. Secondly, because it involves other considerations besides caloric or hygienic values. Thirdly, because the poor housewife in general does exceedingly well with the money at her disposal compared with those who usually give advice to this class. She does not require to be told that bread, oatmeal, and potatoes are economical compared with many other foods often belauded in medical journals, nor that cheap cuts of meat or cheap cheeses are of as high nutritive values as the more expensive kinds. All that I would say with regard to this principle is that to judge the value of a food by laboratory tests regarding its calorie value has been, and is, most misleading. A food such as uncooked fruit may have a high hygienic value. This may at times be wanted, but though it has calorie value is valueless when it is not wanted. Moreover, the judging of the cheapness of food by the amount of calories procurable from a given sum has led to advice which is worse than useless. Because an amount of sugar representing a large number of calories can be bought for a relatively small amount, it has been argued that sugar is an important and valuable food *for the poor*. Since, however, force of circumstances compels the poor to obtain the great bulk of their nourishment from bread or cereals and potatoes, and inasmuch as these contain relatively a superfluity of carbohydrates every penny spent on sugar by the poor is, from the point of view of nutrition, simply wasted. But this is not all. The sugar is often taken in a particularly obnoxious form, either as sweets between meals or as jam spread upon bread. Not only then is the money spent on the sugar wasted, but the fruit which is made into jam has most of its virtues destroyed as far as oral hygiene is concerned, and this at the considerable expense which is entailed in reducing it from the hygienic and palatable form in which nature provides it to the unhygienic form in which we see it prepared to destroy the teeth of the present day.

Another principle which should be considered by those who issue dietetic precepts is that functional activity is generally necessary for the most perfect development of an organ. A conspicuous illustration of this may be seen in the muscular development of the blacksmith's arm. This principle applies also with regard to the development of the salivary and probably also to other glands for the hygiene of the alimentary canal. Similarly without any doubt the muscular development of the organs of digestion is affected by the physical nature of the food. This is notably so in the case of the muscles of mastication; moreover, the development of the muscles of mastication has a distinct influence on the development of the jaws, and this again has its influence on the arrangement of the teeth. The anatomical perfection, then, of the first part at least of the digestive apparatus of man is quite appreciably affected by the physical nature of the food consumed in childhood.

I might refer to other principles which indicate, for example, that eating between meals should be avoided; that the concentration of the different elements composing foods (especially sugar) should not exceed the concentration habitually found in such foods as man throughout his evolution must have subsisted upon; that three meals a day are to be preferred to any greater number, &c.; but as these and other principles dealt with in this paper have been gone into in much greater detail in my books there is no need for further elaboration at present.

I should, in conclusion, like to refer to two reasons for bringing forward this communication. The first is to indicate that principles of dietetics might be formulated; and the second that the principles of dietetics or the value of foods cannot be established by those who set up laboratory tests and standards as criteria. Nor can they be deduced from the most elaborate statistics having reference to calorie values. The accumulation of statistics on nutritive values, however accurate, gives no more guide to hygienic values than do hygienic values give a guide to nutritive values, and the use of such statistics as a basis for generalising only prevents us from doing what science ought to do—namely, to methodise knowledge and reduce it to principles.

THE STERILISATION OF ALBUMINOUS CULTURE MEDIA BY ETHER.

BY PAUL FILDES, M.B., B.C. CANTAB.,
AND
L. W. RAJCHMAN, M.D.
(*From the Bacteriological Laboratory, London Hospital*—Professor WILLIAM BULLOCH, F.R.S.)

AT the present time, when many require sterile serum and ascitic fluid for the cultivation of certain bacteria, it may be opportune to publish a method for the sterilisation of such materials which we have utilised successfully.

When sterilised by heat, serum, and in particular horse serum, is apt to undergo changes which render it unsatisfactory for use. For instance, many samples of horse serum as obtained at a slaughter-house when heated to 60° C. become more or less completely "set," and thus cannot be mixed with other constituents in a culture medium. Further, the method of sterilisation by heat as applied to such fluids is far from being invariably successful in destroying contaminating bacteria.

Various volatile antiseptics, such as chloroform and toluol, have therefore been used for this purpose, but in our hands these additions have not always produced sterility, and, further, have the disadvantage of throwing down precipitates which take months to settle completely. On the other hand, ether as used by Ori[1] has been entirely satisfactory.

We have applied the method in the following way. 1. The serum or ascitic fluid is collected without any particular aseptic precautions and enclosed in a well-stoppered glass bottle. In the case of the ascitic fluid, which varies greatly in reaction, acid or alkali is added to render it neutral to phenolphthalein, and, if necessary, it is filtered through paper. 2. Ordinary methylated ether is added to 3 per cent. and the stopper tied in. 3. The bottle is then placed in a water-bath at 45° C. for one hour or longer to ensure that the serum is actually heated for the full time. 4. At the end of this time the fluid is found to be sterile and is stored for use. 5. When required a sample is removed from the bottle and placed in a sterile test-tube or other vessel. The test-tube is then thoroughly agitated in a water-bath at about 55° C.

[1] A. Ori: Biochemisches Centralblatt, 1906, v., 193.

and the ether will rapidly boil. When the ebullition has ceased the material will be ready for use. The ether will not boil unless the tube is shaken, and it must not be allowed to remain in the bath long enough for the serum to become thoroughly heated.

If the blood corpuscles have not been entirely separated from the serum before sterilisation they will be completely laked by the hot ether, and the resulting medium will be more or less deeply stained with hæmoglobin, but nevertheless quite transparent. No precipitation or cloudiness appears during the process; on the contrary, the fluids are rendered unusually clear. Within our experience this method has never failed to sterilise either ascitic fluid or serum.

Among the more obvious advantages of this procedure over any over, it will be noticed that the albumins are unchanged by heat, and thus the fluids are as efficient media as if they were collected aseptically from the living animal. The sterilisation is rapid and certain to such an extent that it is unnecessary to prove the sterility before use. Finally, the method is applicable to the preservation of certain immune sera; thus we have found that the activity of hæmolytic immune serum is not reduced by ether sterilisation.

London Hospital Medical College.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF TETANUS OCCURRING TEN WEEKS AFTER INJURY.

BY ALEXANDER DON, F.R.C.S.EDIN.,
MAJOR, R.A.M.C. (T.F.), 1ST SCOTTISH GENERAL HOSPITAL, ABERDEEN.

A PRIVATE of the First Gordon Highlanders, aged 40 years, received a shrapnel wound on Dec. 21st, 1914; the bullet entered the right shoulder, fracturing the head of the humerus, the glenoid cavity, and the body of the scapula, and emerging opposite the inner scapular angle, 2 inches from the centre line. The wound was cleaned on admission on Dec. 31st. The scapula was much comminuted and several loose pieces were removed. Antitetanic serum was administered two days after the injury (Dec. 23rd) at Boulogne. On Jan. 28th, 1915, he was sent to Aboyne Auxiliary Hospital, and was re-admitted on March 2nd with symptoms of tetanus. The tetanus bacillus was discovered in the pus and in a piece of bone which extruded from the wound.

Three thousand units of serum were given the same night subcutaneously, also gr. xxx. potassium bromide and gr. x. chloral hydrate every four hours. Up to March 18th 147,000 units in all were given, doses varying from 3000 U.S. units a day to 20,000, according to the condition of the patient as regards frequency of spasms. It was noted that the severity of the spasms and of pain varied inversely as the number of units injected. On three occasions, March 4th, 5th, and 6th, he had 4000 units intravenously, by puncturing a dilated vein in the arm through the skin. On all these occasions a distinct red irritated area appeared within the next 24 hours.

Twice an attempt to give an intrathecal injection was made. At the first attempt no spinal fluid escaped, and the operation was abandoned. His back was very much curved by the opisthotonic spasms, but from daily experience of spinal anæsthesia I feel that I had reached the dural sac. On the 6th he was very bad, and a second intrathecal injection was attempted. Again no fluid escaped, but 2000 Lister Institute units were injected at high pressure, and the night following he became unconscious, passing fæces and urine in bed, and seemed moribund. He appeared to have cerebro-spinal meningitis, which was attributed to irritation from the serum. He recovered somewhat towards morning, and became conscious again shortly after.

For some days his condition was very critical, but by March 18th the spasms had entirely ceased, and no more serum was given. It seemed that the concentrated serum, supplied in 4000-unit ampoules, was irritating both intravenously and intrathecally. Also that the effect of the serum in controlling the spasms lasted for less than 24 hours, and modified the severity of the spasms in three or four hours after injection. A quarter of a grain of morphia controlled the pain and gave a more restful sleep than the chloral hydrate with the bromide. Morphia was not, however, given except during the night, and on instructions. Chloretone rectally in olive oil had no marked effect.

The patient all along took nourishment well. The wound was in no way red or inflamed. The spasms were most severe at first on the side of the injury and at the root of the neck.

The long period between the wound and the first symptoms of tetanus suggests either (*a*) a recent infection, or (*b*) a delay in the appearance of the disease, due to the prophylactic dose given at Boulogne. The pulse-rate reached 140 on March 5th and 6th at night, but the temperature was seldom above normal, and seemed to depend more on the amount of discharge from the wound than on the severity of the tetanic spasms. The patient is now progressing satisfactorily, but there is still some "position" rigidity, which is gradually wearing off.

COMA IN A CHILD.

BY J. H. DONNELL, M.B., B.C. CANTAB.,
CAPTAIN, R.A.M.C. (T.F.).

ON Saturday, May 16th, 1914, at 7 P.M., I was called to a case which presents some interesting speculations.

The patient was a boy, aged 8 years, residing in a neighbouring village. He was in a state of coma. The history obtained was that after running about a cricket-field on that rather warm afternoon, he had come in to tea, and during this meal, at 5.45 P.M., had suddenly become unconscious. There were no convulsions at the time, merely unconsciousness. When I saw him his limbs were flaccid, his pulse and colour good, the breathing was quiet, temperature 99° F., and the pupils were moderately dilated but reacted to light. I inquired from a brother who had been with him for the possibility of any herbal or other poisoning, but failed to elicit any information. Two drachms of castor oil in milk were slowly given by the mouth. At 8.45 P.M. convulsions set in and continued with but brief intervals till 10.15, when they became less frequent, the last occurring at about 11.30. He remained unconscious until 3 A.M. During this period the pulse and colour were good. The information was now elicited that some boys had said the lad had eaten some chestnut leaves. Later, after recovering consciousness, he vomited and there were some "green" red currants in the vomit. On questioning the boy on the morning of the 17th he confessed to having eaten unripe gooseberries and green red currants, but denied eating any chestnut leaves. He had never previously had convulsions in his life nor any epileptic fits, neither was there any history of similar conditions in the family. On this morning he complained of slight gastric pain, but otherwise he appeared well, and the castor oil had been effective.

The details of the above case suggest the question whether it really was a case of poisoning from the unripe fruit. I take it that in children convulsions are due not to an intoxication but to a gastro-intestinal irritation; also the patient was old for an infantile convulsion, and the sequence of coma first and convulsions later is not of the usual type. The sequence is equally wrong if an epileptic fit is suspected, and, as pointed out above, if it was an epileptic fit it was his first, and rather an unusual one in its characteristics.

Hinckley.

Medical Societies.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF PATHOLOGY.

Adeno-carcinoma (Mesothelioma) of the Kidney.—Congenital Cystic Kidneys.

A MEETING of this section was held on May 7th, Professor E. J. MCWEENEY being in the chair.

Mr. T. T. O'FARRELL read a paper on a specimen of Adeno-carcinoma (Mesothelioma) of the Kidney. The specimen was a tumour of the left kidney removed by operation by Dr. M. C. Staunton, to whom Mr. O'Farrell tendered his thanks for leave to exhibit the specimen. The patient was a girl aged 6 years. Since she had been two years old she suffered from vague abdominal uneasiness and for the past two years the abdomen had been noticeably distended. There were no marked symptoms apart from occasional attacks of pain; there had been no wasting, hæmaturia, or evidence of any secondary deposits. Since operation the child appeared much improved and at the present time is running about apparently in the best of health. To the naked eye the kidney was uniformly enlarged, showing some prominences in places; the tumour seemed continuous with the organ, but in part, more particularly towards the pelvis, the kidney substance was flattened out and formed a shell about the tumour. The specimen measured 15 by 9 by 7 cm. On section the tumour was soft and divided into distinct lobules, which varied in size from 8 cm. to 0·5 cm. in diameter. The greater bulk of the tumour was towards one pole, but the kidney substance was almost everywhere infiltrated by the growth. Microscopically sections taken from different parts showed typical adeno-carcinoma, with regular and irregular acini. After careful examination no other neoplastic cellular element, such as sarcoma, could be found. The naked-eye appearances of the specimen exhibited, taken with the youth of the patient, were strongly in favour of a diagnosis of teratoblastoma, a not uncommon kidney tumour of children. But though he kept in mind that in these tumours one element—the carcinomatous one—may preponderate, the specimen exhibited could not be regarded as such, for not even a trace of other element than the carcinomatous one could be found, and hence he thought it should properly be called a true blastoma, a tumour arising from unpotential cells, in this case a mesothelioma, and accordingly an extremely rare one in such a young patient.

Professor MCWEENEY said that after examining Mr. O'Farrell's microscopical specimens he had no doubt that, apart from embryological considerations, the tumour should be called an adeno-carcinoma.

Professor H. METTAM said he did not see why a new growth in the kidney should not be of a compound papillomatous nature, such as is met with in the ovary.

Mr. O'FARRELL, in replying, said he was pleased to have had his diagnosis confirmed as to the adeno-carcinomatous appearance of the specimen. The presence of muscle fibres was, he thought, a not uncommon finding in kidney tumours, and was probably due to inclusions from the sclerotome.

Professor MCWEENEY exhibited the Kidneys of a male, aged 47 years, who died at the Mater Misericordiæ Hospital in a uræmic seizure. The patient was alcoholic, but had enjoyed good health until three weeks prior to admission, when he began to suffer from "fits." He complained of headache, tenderness over the left hypogastrium, violent pains in the calves of his legs, and diarrhœa. The seizures consisted of clonic spasms lasting about 15 minutes, giving place to coma, with stertorous breathing, which lasted about three hours. The pupils were unequal and knee-jerks absent. After a seizure the patient was quite collected and intelligent. On palpation a large tumour could be felt in the left hypochondrium. The patient only lived two and a half days after admission. Shortly before his death a white frost-like efflorescence was noticed on the skin of the face. The urine had a specific gravity of 1010, and contained a small amount of albumin. Samples were difficult to obtain, and it was not fully examined. At the necropsy the left kidney measured 20 by 10 by 10 cm. and weighed 1250 grammes. The right measured 17 by 10 by 8 cm. and weighed 850 grammes. The pelves and ureters were remarkably small. The kidney substance was reduced to small patches of parenchyma wedged in between innumerable cysts, and there was no distinction between cortex and medulla. The cysts were of all sizes up to that of a walnut, and the contents of some were thinly liquid, whilst others contained solid translucent brownish material like inspissated glue. Some of the cysts contained minute yellow spherical concretions with laminated and radiated structure, and consisting of an albuminous matrix with lime salts—chiefly carbonate. The largest seen measured 0·3 mm. in diameter. Microscopically very few glomeruli were visible, and of these the majority were hyaline, with a laminated Bowman's capsule. The cysts were lined with a single line of cubical epithelium, tending to disappear in the larger ones. The connective tissue was much increased and contained patches of lymphoid cells and unstriped muscle. There were patches of cells of epithelial aspect lying free in the connective tissue and suggestive of carcinoma, but presenting no evidence of mitotic activity.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held at the West London Hospital on June 4th, Colonel T. H. Hendley, I.M.S., being in the chair.—Dr. F. S. Palmer read a paper on the Functional Palsies and their Recognition, in the course of which he said that excluding cancer and tuberculosis there were few terms more awe-inspiring and loosely applied than that of paralysis. To the lay mind its significance was serious and unmistakable, and the popular view was probably based on the results seen in organic cases alone. The recognition of the functional examples was of paramount importance to the clinician. No distinction could be drawn between the words hysterical and functional as applied to paralysis. Organic disease and functional disorders might co-exist, as sometimes seen in cases of cerebral tumour. Many grave diseases of the nervous system developed on functional lines and for a time masked the underlying cause, especially the irregular forms of disseminated sclerosis; in their earlier stages they were sometimes indistinguishable. The diagnosis of the functional palsies was made by the exclusion of organic signs, evidence supplied by the examination of reflexes, and the recognition of hysterical personality. Ordinarily recovery was the rule except in long-standing cases with fibrotic changes in the joint and tendons. Sensation might or might not be disturbed, but usually marked anæsthesia in some form was present. Although it was often profound, and frequently changed its position, it never corresponded to the anatomical distribution of the paralysis, which varied from slight motor weakness to absolute loss of power. Within recent years some special signs had been noted of great diagnostic value to practitioners. Besides several local palsies the types usually encountered were monoplegia, hemiplegia, and paraplegia; diplegia and quadriplegia were so rarely seen that they did not require attention. Much importance was attached to the study of the reflexes, especially the plantar response, gait, pupillary and electrical reactions, together with the use of the ophthalmoscope. Of the local palsies hysterical aphonia due to paralysis of the adductors, in the eye concentric contraction of the visual fields, and in the ocular region pseudo-ptosis from spasm of the orbicular muscle were the most common. Some of the functional palsies were comparatively easy to recognise, but others were problems of great difficulty.—Mr. N. Bishop Harman, Dr. Alastair MacGregor, Dr. A. Ogier Ward, Mr. O. L. Addison, and others took part in the subsequent discussion, to which Dr. Palmer replied.

Reviews and Notices of Books.

Œdema and Nephritis: A Critical, Experimental, and Clinical Study of the Physiology and Pathology of Water Absorption in the Living Organism.

By MARTIN H. FISCHER, M.D., Eichberg Professor of Physiology in the University of Cincinnati. Second edition, revised and enlarged. With 160 figures. London: Chapman and Hall; New York: J. Wiley and Sons. 1915. Pp. x.–696. Price 21*s.* net.

DURING the last eight years Dr. Fischer has written extensively on the subjects treated of in this volume, which is an elaboration of the two volumes on "Œdema" and on "Nephritis" that formed its first edition. To sum up its contents in a single phrase, it may be described as an apotheosis of colloid chemistry in explaining the physiology and pathology of living matter.

So far as œdema is concerned, and the transfer of fluids and dissolved substances into and out of the cells of living matter, Dr. Fischer criticises very severely the "osmotic theory," which attempts to explain the observed phenomena by appealing to differences in the osmotic pressures exerted by the contents of the cells and by their surroundings. He similarly criticises the "lipoid membrane theory," which endeavours to help out the osmotic theory by assuming that there is a lipoid skin outside each cell to act as a semi-permeable membrane, and to regulate the direction and intensity of the osmosis. In the place of these theories he gives us (1) "the laws of equilibrium" between the contents of the cell and the medium surrounding it (p. 171), these "laws" being influenced by (2) solubility characteristics, (3) phenomena of adsorption, and (4) chemical combination. Armed with these weapons, he finds no difficulty in explaining processes such as the secretion of urine by the kidney, or the excretion of acid gastric juice from the practically neutral blood. The chemistry and physics of colloid solutions and suspensions have made great progress during the present century, and so has the study of the phenomena of adsorption. But surely Dr. Fischer is going rather far when he asks us to believe that the excretion of urine is satisfactorily explained on the following lines (p. 326): "When now we recall the physico-chemical fact that when any dissolved substance is offered simultaneously a liquid colloid, a solid colloid, and water (as is the case in the kidney), an *unequal* distribution of the dissolved substance between the three phases is the *rule*, then we will have no difficulty in understanding why a difference in quantitative composition between the blood, kidney tissue, and urine, so far as dissolved substances are concerned, is also the rule. *Wherefore a 'selective' secretion is to be expected rather than to be wondered at.*" No better instance of an explanation of an *ignotum per ignotius* could be looked for; for what do we know, apart from guess-work, of the physics and chemistry of that incredibly complex fluid, the circulating blood, and what do we know of the physics and chemistry of the living cells that secrete urine in the kidney? How can it be legitimate to describe the blood simply as "a liquid colloid" and the renal cells as "a solid colloid," and further to describe both the blood and the urine as "water"? Given such variables and unknowns as the blood, the renal cells, and the colloids of the body with their variable capacities for attracting water, it is quite easy to speculate on the ways in which urinary secretion and œdema might be produced, without considering the influence that must be exerted by the osmotic pressures of the various crystalloids and colloids entering into the composition of the fluids and cells concerned. But speculations as to the *modus operandi* of these complex processes, valuable though they may be as analogies, can have little finality so long as our knowledge of the special colloids concerned and of the laws of adsorption and colloid chemistry remains as fragmentary as it is at the present time.

In his anxiety to make out a case for the colloids of the body Dr. Fischer appears at times to be in danger of neglecting the crystalloids with which they are inextricably bound up. In speaking of the "variable capacity of the body colloids for holding water," he leaves the reader in some little doubt as to the way in which this water is held. Dr. Fischer compares it to the avidity of fibrin, gelatin, catgut, or the protein of dialysed blood serum for water, and quotes a number of interesting experiments to exhibit the influence of acids, alkalies, and other substances on this avidity. Yet the reader cannot but remember that none of these experimental materials exist in the human body during life, and so may hesitate to agree with Dr. Fischer that "the absorption of water by muscle is determined in the main by the state of the colloids contained in it" (p. 126). Argument by analogy is not a very sound method nor very convincing when the questions at issue are so many and so complex.

Regarding œdema as "a problem in colloid-chemistry" on the lines indicated above, Dr. Fischer will have nothing to do with explanations of it based on "increased permeability of the blood-vessel walls," "decreased ability to hold back water," "increased imbibition," or "variations in blood- or lymph-pressure," time-honoured phrases of an older day. He then quotes (p. 178) a simple experiment which proves clearly that œdema may be due to the tissues' "decreased ability to hold back water," or to their "increased imbibition"; but, oddly enough, he only draws a most illogical conclusion from the experiment himself—namely, that as the vessels of a limb that developed œdema had been tied, circulation-pressures cannot be one of the determining causes of œdema. He gives reasons for believing that an accumulation of acids in the tissues is the most potent factor in the production of œdema, and that this over-production or over-accumulation of acids is often due to a lack of oxygen in the tissues.

About 250 pages of the volume are given to the subject of nephritis. Dr. Fischer recognises only one kind of nephritis—namely, parenchymatous nephritis; but this, he says, may affect either the whole kidney or only spots in it. Speaking generally, he sets nephritis down to the abnormal production or accumulation of acid and of substances which in their action upon colloids behave like acid in the cells of the kidney. Pathologists who are not satisfied with any of the many classifications of the varieties of nephritis should welcome such simplicist conceptions as these. They lead Dr. Fischer to interesting conclusions as to the treatment of chronic nephritis. He supports the use of the "lacto-vegetarian" diet so long advocated by the French, his formula being "give alkali, salts, water, and dextrose"; without making drastic restrictions in the dietary he would cut

down the acid-producing proteins of the food. Plenty of water should be given; Dr. Fischer believes that the primary function of the kidney is to excrete water, and that "the secretion of all dissolved substances is secondary to this." He has a number of observations to make on methods of estimating clinically the acidity of the urine, and the deductions that may fairly be drawn from the acidities found, that should be of interest to clinicians. Using methyl red (0·2 gramme in 100 c.c. alcohol) as an indicator, he says: "I cannot recall a single patient in whom it was difficult or impossible to hold the urinary acidity below that of the turning point of methyl red who did not die." At the end of the volume he gives a discussion of glaucoma considered as one of the local œdemas; he sets it down to the production or accumulation of acids or similar substances in the eye.

The book is long, and the contentious matter with which it is filled is so abundant that it is hard for a reviewer to do full justice to it in a brief compass. Dr. Fischer writes very clearly and has arranged his matter excellently. He often gives the impression that he underestimates the strength of the position of his adversaries—the believers in the importance of osmosis, for example, or of cell membranes, or of the distinction between living and dead tissues, in the metabolic processes of the living body. He has undoubtedly done good service by drawing attention to the importance of the hydration and dehydration of the colloids of the body, and the necessity for the study of colloid chemistry by those who would understand the why and wherefore of vital processes. But perusal of his pages leads to the feeling that the phrase "colloid chemistry" is but an ample cloak for our ignorance of the physico-chemical processes of living cells, and that as an explanation it takes us no further than, for example, an explanation of bacterial agglutination based on such an obscurity as Helmholtz's theory of double electric envelopes. Dr. Fischer is an enthusiast with a far-reaching theory to push, and so it is perhaps not unnatural to find his views one-sided wherever that theory is concerned. His volume makes stimulating and even provocative reading; it may be warmly recommended to all physiologists and medical men who are interested in the main subjects with which it deals—namely, œdema, nephritis, and glaucoma.

The Heart in Early Life.

By G. A. SUTHERLAND, M.D. Edin., F.R.C.P. Lond., Senior Physician to the Hampstead and North-West London Hospital; Physician to Paddington Green Children's Hospital. London: Henry Frowde and Hodder and Stoughton. 1914. Pp. 211. Price 6*s*.

THIS work deals with a subject which receives but little attention in the ordinary text-books, but which is of the greatest importance in determining a child's future course of life. The heart in childhood and youth, as in adult life, is subject both to organic disease and functional derangement, but the former is more generally understood than the latter. The differentiation between the two may be difficult, but it must be determined as far as possible. For a child's whole life may be unnecessarily hampered and its development stunted if functional disturbance is mistaken for organic mischief. There is a close similarity between the cardiac signs and symptoms of the two conditions, and the whole aspect of each case has to be carefully studied. As Dr. Sutherland points out, the period of childhood and youth has its own peculiarities and problems; there is an instability about the cardiac action which is not present in the fully developed adult heart. This instability would appear to be both in the nervous mechanism—central and peripheral—which controls the heart and in the heart itself. In early life the cardiac action is much more easily disturbed because the cardiac apparatus is not yet fully developed, hence a large number of what may be called developmental disorders and disturbances are met with.

A full description is given of the various forms of functional cardiac irregularity in the young, the cardio-respiratory form being especially considered. The diagnosis and prognosis of these irregularities are discussed at length, and this section will well repay careful study. It is rightly pointed out that if the cardiac disturbance is proved not to be of organic origin the important conclusion follows that no treatment directed to the heart is required. The patient's surroundings and mode of life must be carefully considered, and a search must be made for any source of infection or any disease in other parts of the body, particularly gastro-intestinal disorders. We agree that the majority of these disturbances are to be traced to a disordered state of the nerves, and will not be removed except by treatment directed to building up a healthy nervous system.

Organic disease of the heart in early life is also well described, and much information likely to prove of value in actual practice is given. The importance of preventive treatment is emphasised. In the case of an acute attack of rheumatic fever the possibility of carditis must always be kept in mind, and support will be given to Dr. Sutherland's contention that to prevent this complication the salicylate treatment should be thoroughly carried out, while rest during the convalescent stage should be sufficiently prolonged.

We cordially recommend this volume to those engaged in general practice who are likely to be brought into contact with a large number of the diseases—major and minor—of childhood.

Occupational Diseases of the Skin: a Brief Account of the Trade Processes and Agents which give rise to them.

By R. PROSSER WHITE, M.D. Edin., M.R.C.S., Senior Physician and Dermatologist, Royal Albert Edward Infirmary, Wigan, &c. London: H. K. Lewis. 1915. Pp. 165. Price 7*s*. 6*d*. net.

THE more widely our knowledge of the diseases of the skin extends the more do we appreciate that many of the dermatological lesions which we have to treat arise from the external influence of chemical substances and other agents with which the skin is brought into contact; and the multiplicity of modern trades has increased greatly the number of the harmful substances which are able to give rise to diseases of the skin. Up to the present no work has been specially devoted to this subject, and we therefore welcome the appearance of this book, for it will enable many practitioners to identify the causative agent of a doubtful lesion of the skin. The passing of the Employers' Liability Act has also made the matter of more importance.

While the value of the book is great in itself, it has been materially enhanced by the inclusion of a very large number of references to the original

papers from which the facts included have been taken, and great credit is due to Miss A. Newbold, who has been responsible for most of these references, especially those which have been taken from foreign works and journals.

This book should have a wide circulation, as it deals with a subject which concerns all medical men who have to treat or to examine workmen.

Medical Applied Anatomy for Students and Practitioners.

By T. B. JOHNSTON, M.B., Ch.B. Edin., Lecturer on Anatomy, University College, London. With three full-page plates in colour and 146 other illustrations in the text. Edinburgh Medical Series. London: A. and C. Black. 1915. Pp. 436. Price 7*s.* 6*d.* net.

IF the question were asked what sort of book upon human anatomy could be written at the present day to fill any real gap in our already long series of text-books, an answer could easily be given: there is need for a medical applied anatomy. The ideal book is to be for the physician what so many existing surgical anatomies are for the surgeon. It is easy to name several works upon surgical anatomy, every one of which is good; but medical anatomies are few, and to recommend any treatise as a text-book which should guide the physician would be matter of considerable difficulty. To judge by the attempts that have been made, the writing of such a book is no easy matter.

It is to be doubted if even now Dr. Johnston has produced the exact book we have in mind; but it is certain he has written a very good one. The writing is clear and careful, and the accounts of anatomical conditions are for the most part excellent. The author has used judgment in assigning definite anatomical explanations for clinical phenomena, and very few criticisms could be made with any justice; it should be pointed out, however, that the commonest anatomical basis of epistaxis is as a rule very beautifully revealed to the anatomist's inspection, and that it is not a communication between nasal veins and superior longitudinal sinus *vid* the foramen cæcum.

We think that a book so good as this should be more fittingly illustrated; the beautiful drawings of Leveillé make but poor blocks when handled by modern processes; and Sir William Turner's illustrations, which were excellent 40 years ago, could be improved upon to-day. It is doubtful if surface markings are best shown upon the cast of a classic figure, and the author's purely diagrammatic work is not always satisfying (see especially Fig. 123).

It would be a pleasure to welcome a subsequent edition of this work illustrated by a new and uniform series of anatomical drawings and diagrams.

LIBRARY TABLE.

Field Hospital and Flying Column. By VIOLETTA THURSTAN. London and New York: G. P. Putnam's Sons. 1915. Pp. 184. Price 2*s.* 6*d.* net.—The Field Hospital was in Belgium and the Flying Column in Russian Poland. Miss Thurstan was sent out by the St. John Ambulance Association in charge of a party of nurses to serve under the Belgian Red Cross. They worked at first in Brussels and in Charleroi and the neighbourhood, where they saw many examples of German "frightfulness," Charleroi being entirely burned down by means of an organised system of incendiarism. Then they returned to Brussels, whence after a little they were expelled by the Germans, being conducted as prisoners to Denmark. Miss Thurstan gives a vivid account of the hospital work in Belgium, where the detachment seems to have done admirable work under great drawbacks, but patients, doctors, and nurses worked with such a spirit that most difficulties were surmounted. The journey through Germany *vid* Verviers, Cologne, Münster, and Kiel to the Danish frontier was made singularly unpleasant, but the party were fortunate in meeting one German officer who behaved as a gentleman and a soldier who looked after them at Hamburg. After a short stay in Copenhagen Miss Thurstan and three of her nurses volunteered for service in Russia, which service was gladly accepted. Here the Flying Column work began in Warsaw; later on the column moved to Lodz, round which there was severe fighting and terrible suffering uncomplainingly borne by the wounded. Lodz eventually had to be evacuated and 18,000 wounded were safely moved out in four days. Miss Thurstan ended her labours in the trenches at Radzivilow, where she was nearly killed by a bomb from a Taube, which exploded close to her. However, she escaped with only a slight wound in the leg. In addition to this she contracted pleurisy and was sent to Petrograd to recruit, and there this unpretending and very interesting little book was written.

Medicine (Catechism Series), Part II., second edition, pp. 180. *Operative Surgery* (Catechism Series), Part II., first edition, pp. 144. *Botany* (Catechism Series), Parts I. and II., second edition, pp. 80 and 152. Edinburgh: E. and S. Livingstone. Price 1*s.* each.—We reviewed *Medicine*, Part I. (second edition of this series), in THE LANCET of Feb. 7th, 1914, p. 394. Part II., now before us, deals with disorders of nutrition, chronic intoxications and sunstroke, diseases of the kidneys, and diseases of the blood and ductless glands. Like the former volume, this also appears to be well condensed and kept fairly up to date by its modestly anonymous author.—*Operative Surgery*, Part II., is another useful condensation. It deals with amputations and other operations on the extremities, and operative treatment of fractures and in the head and neck, with nerve operations, trephining, and operations on the cranium, lips, mouth, and pharynx, the neck, and the thyroid body.—*Botany*, Part I., deals with general classification, the anatomy of plants, with insectivorous plants, and with the natural orders. Part II. with the physiology and histology of plants, and includes the life-history of ferns, mosses, and an account of bacteria and fungi. For the purposes of revision and for writing up class notes such books as these serve a very useful purpose. As we have repeatedly remarked, such books are of value only when used to marshal and review knowledge already gained. If used in place of larger works they are pernicious.

Towards Racial Health: A Handbook for Parents, Teachers, and Social Workers on the Training of Boys and Girls. By NORAH H. MARCH, B.Sc., M.R.San.I. With a foreword by J. ARTHUR THOMSON, M.A., LL.D. Illustrated. London: George Routledge and Sons, Limited. 1915. Pp. 326. Price 3*s.* 6*d.* net.—The title of this very excellent little book, which no doubt Miss March has selected after due deliberation, is hardly calculated to convey an adequate idea of its scope and objects.

One of the greatest difficulties which confront parents and teachers is that of conveying to their children or pupils just that amount of knowledge in relationship to sex which is necessary for their spiritual and physical salvation. Too much knowledge, especially if given at the wrong time and in the wrong way, may do incalculable harm, whereas innocent ignorance may equally well be responsible for the most fatal results. In the very briefest, as also in the clearest, possible way Miss March explains on social, ethical, psychic, and physical grounds why this side of education should not be neglected; and not only does she explain why, but, what is far more important, she shows how instruction of this kind should be given to children and adolescents of all ages. It has been pointed out by Stanley Hall that children begin to ask troublesome questions at a very early age, between 3½ and 8 years. Miss March shows how these questions may be answered in such a way that there is nothing left to undo later. She also gives full details of a most admirable course of nature study designed to lead the child by gradual stages to a full knowledge of the significance of sex and sexual reproduction. Beginning with the fertilisation of the tulip, the poppy, and the daffodil, the child is led by almost imperceptible stages to the study of reproduction in earthworms, water snails, land snails, slugs, and other simple hermaphrodite animals. Then to the study of the same processes in the spider, the moth, and the butterfly, and finally, in vertebrate animals such as the frog, the lizard, and the chick. In a valuable appendix Miss March explains the practical details of keeping these didactic animals in appropriate incubators, aquaria, or vivaria. A difficult subject is approached in a delicate and sympathetic manner. It is hard to imagine that the most sensitive feeling can be shocked or hurt by any word expressed or idea suggested in any line of this book. It is written from start to finish in a most reverent spirit, reverent not only of the great biological principles which are unfolded throughout its pages, but also of the spiritual ties which unite parent to children and teacher to pupil. Professor Thomson has contributed a delightful preface in which he testifies to the correctness of the biological facts referred to; on the soundness from a medical and physiological standpoint of the many references to general and personal hygiene we offer Miss March our congratulations.

The Dietetic Treatment of Diabetes. By B. D. BASU, Major, I.M.S., retired. Fifth edition. Allahabad: Panini Office. 1915. Pp. 90. Price Rs1.8., or 2s.—This is a revised and enlarged edition of the little work noticed in these columns last year. The author advises the restriction, or withdrawal, of meat, alcohol, tea, coffee, and "cocoa" (i.e., cacao), and recommends milk, the leguminous meal *besan*, and "cocoanut" (by which he means "coco").

KING EDWARD VII. SANATORIUM, MIDHURST.—The Insurance Commissioners have now arranged for the removal of the non-commissioned officers and men, for whom beds have been reserved by the War Office in the King Edward VII. Sanatorium, to institutions corresponding to the localities in which the patients propose to reside. As a result the sanatorium has, from June 1st, reverted to its original purpose of receiving both male and female patients suffering from pulmonary tuberculosis who belong to the educated classes, whether in professional or kindred employments, but whose means are limited, and the sanatorium has been reconstituted for this purpose from June 1st.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

WEDNESDAY, JUNE 2ND.

THE Council resumed its sittings at its offices, 299, Oxford-street, W. Sir DONALD MACALISTER, the President, was in the chair.

Penal Cases.

The Council heard charges against medical practitioners.

The first case to be considered was that of Alexander Orford Schorn, registered as of Sacriston, Durham, M.B., C.M. 1892, U.Edin., who had been summoned to appear before the Council on the following charge:—"That being a registered medical practitioner you abused your position by committing adultery with a Mrs. Collins, whom you had been attending professionally, of which adultery you were found guilty by the decree of the Probate, Divorce, and Admiralty Division (Divorce) of the High Court of Justice, dated June 29th, 1914, and made absolute on Jan. 25th, 1915, in the case of Collins *v.* Collins and Schorn, in which you were the co-respondent. And that in relation thereto you have been guilty of infamous conduct in a professional respect."

There was no complainant in this case.

Dr. Schorn attended in person.

Mr. C. HARPER, the solicitor to the Council, brought to its notice the decree of the Probate, Divorce, and Admiralty Division, and certain circumstances connected with the proceedings there.

Dr. SCHORN stated, on his own behalf, that in his view he had not been fairly treated in the judicial proceedings. He denied that he had committed adultery.

The PRESIDENT said: Mr. Schorn, I have to inform you that the Council has judged you to have been guilty of infamous conduct in a professional respect, and have directed the Registrar to erase your name from the Medical Register.

The next case to be considered was that of Alfred Bertie Kramer, registered as of King's Cliffe, Wansford, Northants, M.R.C.S. Eng. 1911, L.R.C.P. Lond. 1911, who had been summoned to appear before the Council on the following charge: "That being a registered medical practitioner you have systematically canvassed for patients by visits made personally and by a Mrs. Saunt on your behalf to persons in the village of Bulwick, Northamptonshire, who were patients of Mr. Arthur Samuel Stokes. And that in relation thereto you have been guilty of infamous conduct in a professional respect."

The complainant was Mr. Arthur Samuel Stokes, M.R.C.S. Eng. 1881, L.R.C.P. Edin. 1882, of Weldon, Kettering.

Mr. Kramer attended and was represented by Mr. J. Batten, solicitor.

Mr. Stokes was represented by Mr. J. J. Parker, solicitor.

Mr. PARKER, in opening the case on behalf of the complainant, said that he wanted to allege that Mr. Kramer himself canvassed for panel patients, and he sanctioned the canvassing by Mrs. Saunt. He further alleged that Mr. Kramer obtained the medical cards of these persons, and instead of getting the people to sign it would seem that he signed them himself.

The PRESIDENT: These are insurance cards given to patients to fill in with the name of the doctors whom they chose.

Mr. PARKER: Yes. They were not filled in by the patients in this case. He had witnesses who would say that they had not so filled in their cards. The lady referred to in the course of the charge he would submit canvassed patients in Bulwick. In her declaration she said that she was not asked to do so by Mr. Kramer. Some statements were made to the effect that Mr. Stokes was not carrying on these panel patients in Bulwick. There was not a word of truth in these statements. Mr. Stokes had never said anything about it to anyone. It was pure invention. He (Mr. Parker) put in certain insurance cards which, he said, had been filled in by some persons other than the panel patients themselves. The Council would be able, he said, to examine the handwriting for themselves.

Mr. ARTHUR SAMUEL STOKES, M.R.C.S., L.R.C.P., of Weldon, then gave evidence to the effect that formerly he had 30 club patients at Bulwick, who formed the great majority of the club patients in the place. These club patients became his panel patients after the National Insurance Act came into force. Mr. Kramer started a surgery at Bulwick. He learned that his panel patients at Bulwick, all except four, had transferred to Mr. Kramer. It was not true that he had stated that he did not wish to go to these Bulwick patients. He had made inquiries as to what had been transpiring, and as a result he brought this complaint.

Several witnesses gave evidence on behalf of the complainant.

JAMES BARRATT (Bulwick) stated that Mr. Kramer had come to him and said, "I heard you were going to change doctors." He had replied that Mr. Stokes had been his doctor for many years. Then Mr. Kramer asked for his medical card and also that of his brother. He (Mr. Kramer) took the cards away with him. He afterwards found that he was transferred to Mr. Kramer's list. He had no fault to find with Mr. Stokes.

FREDERICK DOLBY (Bulwick) stated that Mrs. Saunt had asked him to join Mr. Kramer's panel. He was quite satisfied with Mr. Stokes, and he had not applied for transfer to Mr. Kramer.

Cross-examined by Mr. BATTEN, WITNESS said that he had never made any application for the medical card, but he had received it by post.

ALFRED LANE stated that in December last Mr. Kramer came to him and asked for his medical card. He said that he wanted it to be sent in, because it ought to be in next day. Witness gave him the card. He signed nothing. The medical card came to him through the post. When it came it had Mr. Kramer's signature upon it. He found that he had been transferred to Mr. Kramer. He was surprised. He wished to remain with Mr. Stokes. He was transferred back again to Mr. Stokes.

The Council sat *in camerâ* in order that it might consider a matter in connexion with the case.

The Council adjourned.

THURSDAY, JUNE 3RD.

Penal Case.

The Council resumed consideration of the case of Alfred Bertie Kramer.

The case for the complainant was continued.

Mr. FREDERICK THOMAS FISHER, M.R.C.S., L.R.C P., was called as a witness on behalf of the complainant. He said that he had been in negotiation for the purchase of the practice at King's Cliffe belonging to Mr. Kramer. He had arranged to visit the practice on July 1st. He had had his suspicions aroused. He had heard things which he did not like, and he had made up his mind to break off the negotiations.

Mr. BATTEN (cross-examining): There was no intention of selling you the practice until after this inquiry?

Mr. FISHER: I did not know this inquiry was going on until this morning.

Mr. BATTEN: The negotiations with you were suspended. There was no attempt by Mr. Kramer to get you to complete the purchase.

Mr. FISHER: Yes. I saw his lawyer yesterday and he told me that the provisional agreement I had signed was binding and the practice was sold to me, but I refused to take it up.

Mr. BATTEN: Where did you see his lawyer?

Mr. FISHER: At Stamford.

Mr. BATTEN (addressing the President): That puts me in rather a difficulty. I should like to consider my position.

The PRESIDENT: Do you ask the Council that you should retire?

Mr. BATTEN: I would like a minute to speak to my client. I do not want to place him at a disadvantage.

The PRESIDENT: You may do so.

Mr. Batten and Mr. Kramer retired from the Council chamber.

Mr. BATTEN (returning shortly afterwards) said: Mr. Kramer appears to have fainted, and I wonder whether the Council could do any other business in the meantime and allow this matter to be suspended for a few minutes.

The PRESIDENT: Certainly.

The Council proceeded to deal with other business reported later. After certain reports had been received Mr. Batten returned.

Mr. BATTEN said that he understood from all appearance that Mr. Kramer would not be able to do anything in his case that day. He (Mr. Batten) was unable to do it for him.

The PRESIDENT: Do I understand you withdraw from his representation?

Mr. BATTEN: I do withdraw, but I feel he is not able to conduct his own defence to-day.

The PRESIDENT: You do not propose to act for him further.

Mr. BATTEN: No, sir, I do not.

The PRESIDENT said that an official of the National Insurance Commission was in attendance to inform the Council what was the normal procedure in sending in the transfers of panel patients who desired to change from the list of one medical man to that of another. He would give this information as a friend of the court and not as the witness of either party. He would ask Mr. Batten to remain in the room in the interests of his late client in order to communicate to him the decision of the Council as to any adjournment.

Mr. BATTEN assented.

Mr. JAMES RAE, an official of the National Insurance Commissioners (England), described the procedure by which panel patients could transfer by consent from one medical man to another at any time. Otherwise panel patients could only transfer at the end of the year. A panel patient who desired thus to change his medical man must give notice to the Insurance Committee before Dec. 1st. The notice could be on a half sheet of notepaper, but no notice could be accepted unless it purported to be in the name of the patient himself. With that notice had to be sent the medical card bearing the name of the old doctor.

The PRESIDENT: Does the person have a new card every year?

Mr. RAE: No. Only a new card in the case of transfer from one medical man to another. When the Insurance Committee received the notice they stamped the old card "Not available after December 31st," thus cancelling it after the end of the year. The committee prepared a new card and inserted the insured person's name and address on the outside of the card, and stamped it "Not available for treatment until January 1st." The new card was then sent to the insured person. There was no doctor's name on it when it was sent. The insured person then filled up the card and put in the name of the new doctor. The doctor if he wished to accept the insured person signed his name in the proper place. The card was returned by the doctor to the Insurance Committee so that it might put the patient's name on the doctor's list.

The PRESIDENT: What happens when a person who is insured cannot write or sign his own name?

Mr. RAE: I have seen cards where such persons have made a mark or a cross—something to identify the information as coming from them.

The PRESIDENT: Is there any practice by which bundles of these insurance cards in blank can be supplied to any person?

Mr. RAE: It is not conceivable. These cards were invariably sent direct to the insured person. The insured person should sign the card at the two places where it was indicated he should sign.

The PRESIDENT: The card filled up should contain twice the signature of the insured person and once that of the doctor.

Mr. RAE: Yes.

Mr. FISHER gave further particulars about the negotiations for the acquisition of Mr. Kramer's practice for which a sum of £750 was asked. He refused to complete the purchase.

The further hearing of the case was adjourned.

Appointment of Committees.

The following committees were appointed:—

Education Committee: Dr. Norman Moore, Sir G. Philipson, and Sir Francis Champneys (nominated by the English Branch Council); Dr. Mackay, Mr. Hodsdon, and Dr. Knox (nominated by the Scottish Branch Council); and Sir Arthur Chance, Sir William Whitla, and Dr. Little (nominated by the Irish Branch Council).

Examination Committee: Dr. Taylor, Dr. Saundby, and Dr. Caton (nominated by the English Branch Council); Sir Thomas Fraser, Dr. Russell, and Dr. Knox (nominated by the Scottish Branch Council); and Sir John Moore, Sir Charles Ball, and Dr. Kidd (nominated by the Irish Branch Council).

Public Health Committee: Dr. Newsholme, Dr. Latimer, and Mr. Verrall (nominated by the English Branch Council); Dr. Norman Walker, Dr. Cash, and Dr. McVail (nominated by the Scottish Branch Council); and Sir John Moore, Dr. Magennis, and Dr. Kidd (nominated by the Irish Branch Council).

Coördination of School Examinations in England.

A report was submitted from the Education Committee upon the recognition of certain preliminary examinations. That report stated that a communication on the subject of the examination of schools from the Board of Education had been remitted for consideration by the Education Committee of the Council. The Education Committee recommended that the Council should in reply report to the Board of Education as follows: "The General Medical Council cordially welcomes the proposed foundation by the Board of Education of a central authority to be charged with the supervision and coördination of school examinations in England, and the establishment of a system of leaving certificates. In taking this step the Council will, in fact, be reaffirming its resolutions on the subject of Nov. 26th, 1904. With reference to the recognition of the proposed examinations for the purpose of admission to the register of medical and dental students, the Council reports that the standard of the second examination, as contemplated, would appear to be satisfactory; and that that of the first, which the Council is informed is to be approximately that of the senior local examinations of the University of Oxford, would be accepted under the present regulations, provided in both instances that the several subjects required by the Council are included in the examination. These are Latin, English, mathematics, and one of the following: Greek or a modern language. This proviso would necessitate in the syllabus of the second examination, as at present planned, the inclusion of more than one 'subsidiary subject.' When the detailed arrangements have been completed the Council will be glad to receive further particulars from the Board of Education."

Dr. MACKAY moved that the Council should approve of the reply recommended to be sent to the Board of Education. He said that it would be remembered by most of the members of the Council that in 1903 and 1904 the Council had under consideration a suggestion from the Board of Education in England that steps should be taken to make uniform a large number of examinations which existed to qualify for admission to the universities and the learned professions. The Council consulted the Board of Education, which agreed in a general way to the proposals then put forward. The matter had taken a very considerable time to carry through, but the Education Committee was very glad to see that the Board of Education had at length been able to take a very definite step and to put forward agreed proposals which were now almost ripe for adoption. The Education Committee thought it highly important that the Council should again emphasise its support to the Board of Education in this most laudable step. The last paragraph of the proposed reply to the Board referred to matters which were not absolutely settled, and expressed an opinion which perhaps might lead to further discussion later.

Dr. NORMAN MOORE seconded the motion.

Sir BERTRAM WINDLE emphasised the importance of the subject. The multiplicity of examinations had previously given the Council a great deal of trouble. He only wished that there was a similar prospect of obtaining in Ireland what was now being proposed for England. If the proposal could be carried out it would be very greatly to the advantage of education generally, and to no profession would it be of more importance than to the medical. He cordially supported Dr. Mackay's motion.

The PRESIDENT remarked that it was not mentioned in the report, but it was a matter of common knowledge that the coöperation of the universities in England had been engaged in the matter, so that if it came to fruition it would be the result of the national effort on the part of all concerned. The motion before the Council amounted to this, that it should give its general support to the proposal as it did ten years ago, and ask that details should be submitted to it.

The motion was agreed to.

Pharmacists and the Medical Curriculum.

The report of the Education Committee also dealt with the question of pharmacists and the medical curriculum. That report went on to say:—"A request has been put forward by the Pharmaceutical Society of Great Britain for the recognition, for the purpose of admission to the Students Register, of the certificates attesting the preliminary examination of qualified pharmacists desirous of attaining a Licence in Medicine; and, further, for the recognition in the medical curriculum of the classes taken and the examinations in medical subjects passed by qualified pharmacists in their special course of instruction. These proposals are made in view of the present 'shortage of medical men and the possible emphasis of that shortage in the near future." The committee would point out that the society has no preliminary examination of its own, and that among the examinations which it recognises there are many which are not accepted by the Council, on the ground that their standard is not sufficiently high. The professional course embraces botany, physics and chemistry, and materia medica and pharmacy. These subjects are studied chiefly from the point of view of their practical application to pharmacy, and the examinations appear to be amply sufficient for that purpose. The question is one which does not seem to call for any action on the part of the Council, as machinery already exists in the Students' Registration Committee under which candidates whose preliminary examination is in any respect incomplete may have *pro tanto* recognition extended to those portions which are satisfactory. So far as the recognition of the professional course is concerned, the matter is primarily one for the consideration of the licensing bodies, who have power to recognise any courses of study and examinations other than the final or qualifying examination, which in their opinion is equivalent to the course of study and examinations prescribed for the medical curriculum."

On the motion of Dr. MACKAY, seconded by Dr. NORMAN MOORE, the Council expressed its approval of the terms of the report.

Public Health Committee.

Sir JOHN MOORE intimated that no formal report would be presented by the Public Health Committee. He, however, had been requested to inform the Council that the Registrar had been asked to draw up statistics relating to passes and rejections amongst candidates for Diplomas in Public Health for the last ten years. That statistical information had been drawn up.

Indian Subordinate Medical Department.

A report was received from the Examination Committee, together with the chairman of the Education Committee and the chairman of the Students' Registration Committee, on (1) Indian Subordinate Medical Department, preliminary examinations in general knowledge and course of study; and (2) the form of the certificates to be granted to Indian graduates and students seeking admission to the Students Register of the United Kingdom. Mr. C. E. Mallett, the secretary for Indian students, wrote on March 31st that "since Nov. 11th last fresh regulations have been sanctioned by the Government of India, with the approval of the Secretary of State, for the recruitment of military assistant-surgeons of the Indian Subordinate Medical Department. The intention of the changes was to raise the preliminary educational standard for candidates for admission to the service to that required by the General Medical Council, and to extend the course of study to five years."

It was stated in the report of the Examination Committee that: "With regard to the recognition and subsequent training of members of the Indian Subordinate Medical Service applying for admission to the Students Register and seeking to proceed to licence in this country the Council in 1912 made the following recommendations to the licensing bodies: That no certificates should be accepted from the candidates except those embodied in the special forms prepared by the India Office; that a preliminary examination in general education recognised by the General Medical Council should be required; that no one of the three professional examinations of the Indian Subordinate Medical Service should be accepted; and that two years of actual study, in addition to the four years' course pursued in India, and embracing the subjects of pathology, pharmacology and therapeutics, medicine, surgery, midwifery, vaccination, hygiene, mental

diseases, and anæsthetics should be required antecedent to qualification. The attestation certificate forms which were drawn up in 1912 were found by the Indian Government to be in some degree unsuitable, and were modified in 1914. The second of two communications from the India Office now under consideration intimates the approval of the new forms by the Indian Government in all respects save one, and that of a purely technical character. It had been provided originally that the attestation forms dealing with the preliminary examinations in general knowledge should be signed in all cases by a university official. The Indian Government now suggests that in the case of the preliminary examination of the United Provinces (India) Education Department the certificates should bear the signature of the secretary of the examining board. The proposal is one which solely concerns the local management, and the Council will have no hesitation in agreeing to it. In the first of the two communications the Council is informed that the course of professional study for the Indian Subordinate Medical Service will be extended in the future from four to five years, and that prior to its commencement candidates will be required to pass a preliminary examination recognised by the General Medical Council. With regard to the course of study the lengthening of the curriculum will necessitate a reconsideration on the part of the Council of the recommendations issued to the licensing bodies in 1912 dealing with the extent of the recognition to be extended to it in this country, and to this end the Council is advised by the committee to request from the India Office full particulars of the new conditions, including the subjects of study, the time devoted to each, the nature of the examinations, and the character of the teaching. In view of the intimation that the Indian authorities will in future require from the candidates a preliminary examination in general knowledge recognised by the Medical Council, the committee recommend that the 'regulations in regard to the registration of students' as published yearly by the Council be regularly transmitted to the India Office. In the present circumstances, as the older regulations were to some extent modified last year, the report of the Education Committee upon Indian examinations as adopted by the Council in June, 1914, should also be transmitted. Under the new conditions the actual 'preliminary examinations' at present conducted in India are accepted by the Council as marking the date of the commencement of the curriculum and establishing full recognition to the courses of study in chemistry, physics, and biology, but they do not of themselves entitle to admission to the Students' Register in this country, and for that end must be supplemented in each case by an additional examination specified in the list printed by the Council. The committee recommend that this report be adopted and transmitted to the India Office."

Dr. MACKAY, in moving the adoption of the committee's recommendation, said that the subject of the Subordinate Medical Service in India had been before the Council on several occasions. On the last occasion the Council took the step of saying that certificates brought by Indian students who sought recognition as students in this country should be on uniform forms which had been drawn up and approved by the Indian Government. The forms as first drawn up were not quite satisfactory, but they were altered as the report showed. The next matter with which the report dealt was of more importance. The Council would remember that with regard to subordinate medical officers, the preliminary examination was not necessarily one accepted by the Council and the course of study was a modified one extending only to four years. The Indian Government had now intimated that they proposed to change this arrangement. Under the new circumstances candidates for subordinate medical posts would be required to pass a preliminary examination accepted by the General Medical Council and also to undergo a five years' course. In these circumstances it was necessary that the Council should modify its recommendations to the licensing bodies as to the amount of recognition of the Indian course for students who came to this country. One part of the report, it would be observed, asked for details of the new five years' course. If the Council adopted the report it would get the information from the India Office in order to enable it to take effective action.

Sir JOHN MOORE seconded, and the motion was agreed to.

The Apothecaries' Hall of Ireland.

Three reports were submitted by the Examination Committee in regard to the Apothecaries' Hall of Ireland—viz., (1) report on tables furnished by the Apothecaries' Hall of Ireland in regard to examinations held in October, 1914, and February, 1915; (2) report on the tables showing the results of examinations held in June, July, and August, 1914, by the Apothecaries' Hall of Ireland, together with the reports of the assistant examiners thereon, the reply of the Apothecaries' Hall of Ireland to the committee's report, and the report of the committee on the reply; and (3) summary of particulars to be considered by the General Council in regard to a proposed representation to the Privy Council as to the licence of the Apothecaries' Hall, Dublin.

The third report contained the following conclusions: "1. Notwithstanding a considerable inducement to take the first professional examination at the Apothecaries' Hall, students do not to any appreciable extent, when commencing the study of medicine, select the Apothecaries' Hall as the means of obtaining a registrable qualification. 2. Many who obtain the L.A.H. diploma have commenced their series of professional examinations, but have failed to obtain a qualification elsewhere, and the cases given support this statement."

Dr. MAGENNIS observed in relation to the third report that it was hardly fair to expect him to reply completely to it as he had not received previous information of its contents. A copy of it might surely have been given to him the night before. In these circumstances it was only fair that its consideration should be postponed until the November session.

Sir CHARLES BALL moved: "That it appears to the General Council that the course of study and examinations to be gone through in order to obtain the qualification of Licentiate of the Apothecaries' Hall of Ireland are not such as to secure the possession by persons obtaining that qualification of the requisite knowledge and skill for the efficient practice of their profession." He said that as long ago as 1895 a somewhat similar question arose before the Council. From 1888 to 1894 a Conjoint Board had existed between the Royal College of Surgeons in Ireland and the Apothecaries' Hall for the purpose of holding qualifying examinations in medicine, surgery, and midwifery. It was frequently inspected, and it was reported that the medical portion of the examination was not sufficient. This was reported in the ordinary way to the Privy Council. Before the Privy Council had heard the case the Royal College of Surgeons withdrew from the conjunction, and the Privy Council replied that it appeared to be unnecessary for it to come to a decision as the Conjoint Board was no longer in existence. There had been no inspection of the Apothecaries' Hall of Ireland under the Medical Act, 1886, since 1902, but instead of that assistant examiners were required to report to the General Medical Council on the whole final examination, not only in surgery, but in medicine and midwifery. From this time on the assistant examiners furnished reports. Some of these contained very useful information. They almost invariably reported that the final examinations were sufficient. In May, 1913, it was decided to discontinue the reports from assistant examiners on the subjects of medicine and midwifery at the final examinations of the Apothecaries' Hall, and to appoint a representative or deputy to be present at all the examinations other than surgery held by the Hall, and to report thereon. Dr. J. Magee Finny was appointed. In 1895 the Apothecaries' Hall said before the Privy Council that one of the reasons why their power to grant qualifications should not be withdrawn was that "young men who cannot afford to pay high fees for examination elsewhere pass the examination at the Hall at moderate cost." The fact was that the fee charged by the Apothecaries' Hall for the first professional examination was only one-third of that charged by the Conjoint Board of the Royal Colleges in Ireland for the same examination, but the total fees charged for the subsequent examinations, including the final examination, were the same for both bodies. As would be seen from the summary of particulars, Dr. Finny had reported that during the year when he acted as deputy, in which there were four stated examinations, no candidate presented himself in all the subjects of the primary professional examination, while only a single candidate presented himself at one examination in physics and biology, and he withdrew before the

oral portion of the examination. The Apothecaries' Hall said that the reason they had so few students for the early examinations was that the General Council refused to register as medical students candidates who had passed the preliminary arts examination held by the Apothecaries' Hall. By direction of the Council (Sir Charles Ball, still quoting from the summary of particulars, proceeded to say) the Examination Committee made an analysis of the returns sent in by the various licensing bodies as to the exemptions granted from professional examinations. This analysis was made for the five years 1907 to 1911. The returns furnished by the Apothecaries' Hall showed that during that period 51 candidates were granted exemption from some portion of their professional examinations on the ground that they had passed similar examinations elsewhere. During the same period only 37 candidates passed for the L.A.H. diploma, and the returns furnished to the Council did not show whether any one of the 37 candidates had passed all the professional examinations at the Apothecaries' Hall. These facts showed that students did not to any appreciable extent select the Apothecaries' Hall from the commencement of their professional course as the means whereby they might obtain a registrable qualification in medicine, surgery, and midwifery. The committee believed on very strong evidence that almost all the candidates who came up for these examinations were those who, having passed some of their professional examinations elsewhere, had failed to obtain their qualification elsewhere. It seldom happened that the full previous professional history of candidates who took the L.A.H. came under the notice of the Council, but statements were obtained by the Registrar from the licensing authorities concerned relating to three gentlemen who registered on the L.A.H. between May, 1912, and March, 1913. He would like to draw the attention of the Council to what the summary of particulars said. This was the passage:—"Mr. X., registered as medical student Dec. 26th, 1911, was rejected in all three subjects of the First Professional Examination held by the Scottish Conjoint Board January, 1912, was rejected in chemistry and biology, but passed in physics March, 1912. He registered the diploma L.A.H. Nov. 25th, 1912, less than one year from the date of registration as a medical student. Mr. Y. was rejected twice in chemistry and once in biology at the First Professional Examination of the Irish Conjoint Board. He was afterwards rejected twice in anatomy and once in physiology. In January, 1912, he was examined for the fourth time in pathology and obtained no marks. He subsequently obtained the L.A.H. at a time when the separate examination in pathology had been temporarily discontinued. He registered in March, 1913. Mr. Z. had been rejected six times in pathology, three times in materia medica, seven times in forensic medicine, and four times in medicine, the only portion of the Final Examination at the Irish Conjoint Board at which he presented himself. On the last occasion (January, 1910) he obtained 70 out of a possible 250 in clinical medicine. He registered as L.A.H. in May, 1912. The Apothecaries' Hall have declined to discuss these cases, but have not challenged the facts." The reason why the Apothecaries' Hall of Ireland declined to discuss these cases was because the gentlemen in question had become qualified. It was true that Dr. Finny, who attended from 1913 to 1914, spoke favourably of some portions of the examinations, although he made serious comments on other portions. It was desirable to recall to members of the Council some of the things that Dr. Finny said. For instance, in regard to physiology at the examination in July, 1913, he reported: "The very smallest acquaintance with the subject seemed to satisfy the examiner, and the questions were by no means of a searching character." He further reported: "The facilities for an examination in practical physiology were *nil* with the exception of the microscope in histology." In pathology he said that in July, 1913, the only examination was in connexion with the orals in medicine and surgery. In 1914 the separate examination was reinstituted. Dr. Finny spoke favourably of this new examination, "now that it is given a special place to itself in 1914; previous to this change it was open to grave objection." The motion which he (Sir Charles Ball) now proposed was a simple one. What would happen if it was adopted by the Council? It became a question for its further consideration whether any move in the direction of reporting to the Privy Council should be carried out. But the passing of the motion did not in any way bind the Council to report its finding to the Privy Council. The Medical Act said that "if it appears to the Council ..... it shall be lawful" for it to represent to the Privy Council. It was not incumbent on the Medical Council to make the representations. The Council might do so if it desired. There were one or two points which he desired to mention. A gentleman who registered as a member of the Apothecaries' Hall of Ireland had practically all the advantages of any other registered medical practitioner. A large proportion of those who took this particular diploma very soon afterwards came to some of the Royal Colleges, and presented themselves as registered medical practitioners seeking the separate licences given by those Royal Colleges. If the gentleman succeeded in passing the examination he could come and register his new qualification, not as an additional one, but in substitution for his first acquired one.

Mr. VERRALL seconded the motion. In November he seconded the proposal for an inquiry, and now, having satisfied himself of the justice of this motion, he proposed to second it. Sir Charles Ball spoke out of full knowledge on this matter. He did not think that, subject to any explanation or reply, anybody could doubt that there was a substantial case for impugning the value of these examinations. Even if the Council were prepared to continue the expense of supervising this particular examination there was no proof that it would provide such a test of candidates as the Council was bound to see was given.

Dr. MACDONALD moved as an amendment, "That the further consideration of the motion be adjourned to the November session." He said that his reason was that the report had not been long enough in the hands of the Council for consideration. The report only came into the hands of members that day. It might be necessary to pass the motion, but they should first have time for consideration.

Sir HENRY MORRIS seconded the amendment. He said that he was at a loss to know what would follow if this motion was passed. If it were passed there would be no alternative, if the Council acted consistently, but to send it to the Privy Council. If the Council did not think that course should be taken, then he wanted to know what course would be taken. Surely the Council would not pass a resolution of this sort without something following on it. It was clear that if the Council passed a resolution of this sort something ought to be done to take care that if the examinations were to be continued the course of study should be such as to bring the examination up to a proper standard. He confessed that he did not see the point of Sir Charles Ball's remarks about the man who had got the L.A.H. coming to London and getting the M.R.C.S. and the L.R.C.P., and substituting that qualification for the L.A.H. on the Register. Why should he not? He was sure that Sir Charles Ball did not mean to insinuate that the Royal College of Surgeons of England was likely to pass a man any easier because he was a possessor of the L.A.H. It was quite possible that the man might pass the examination because of the amount of study which he had done after obtaining the L.A.H. He was sure Sir Charles Ball could not have made the remark to prejudice the body for which he (Sir Henry Morris) was speaking. It was unhappy that he should have made the remark.

The PRESIDENT said that he would explain what courses were open if the motion was passed. Some time ago legal opinion was taken on the consequences of motions of this kind. He was advised that the Act was clear. The Council was entitled to pass such a resolution as this, but it was not obliged by anything in the Act or in the nature of the case to report it to the Privy Council. The alternative course was to send the motion to the Apothecaries' Hall of Ireland along with the summary statement on which the motion was based, and to invite any reply or any suggestion of improvement or any suggestion of alteration of the present system which the authorities of the Hall might desire to bring to the notice of the Council. That could be done if this motion was passed and the Council saw fit.

Sir JOHN MOORE said that he would vote against the amendment. It was futile to say that this subject was sprung on the Council. It was all very well for people in England to talk about it. But as representative of the

Royal College of Physicians of Ireland he could say that one candidate who was rejected at its final examination went over to the Apothecaries' Hall of Ireland and passed for the L.A.H. He afterwards came back and asked the Royal College of Physicians to examine him again. He was rejected. The Royal College had thought it necessary to alter its by-laws, and to say that it would not accept any medical practitioner unless he fulfilled certain conditions. The thing was becoming little short of a scandal. This matter should not be postponed unduly. It had been dragging on year after year, and was damaging the standing of medical men in Ireland.

Dr. NORMAN MOORE did not regard the motion as necessarily hostile to the Apothecaries' Hall of Ireland. It was not deliberately intended to injure that body, and he would vote for it in the hope that it would do good to the Hall and lead to its reformation. It was quite clear from the discussions which had taken place in the Council that it needed reformation. At the same time it would be very wrong to send this resolution to the Privy Council. That would be a hasty act, which the Medical Council should not do. This was a final opportunity to the Apothecaries' Hall of Ireland to put its house in order. The question of the Hall's examinations had been before the Council for ten years.

Dr. LITTLE observed that the matter had been under consideration not 10 years, but 30 years.

Dr. MAGENNIS said that the motion was practically a first attempt at the extinction of an old Irish institution. On the reports of Dr. Finny he thought that any court would come to the conclusion that the examinations of the Hall were sufficient. The reports which had been submitted to the Council would show that they had been improving year by year. He maintained that the examinations in medicine and surgery were as difficult as those held elsewhere. His great difficulty as representative of the Apothecaries' Hall of Ireland in dealing with this report was that he had received it only a very short time ago. To him Sir Charles Ball had appeared to be the prosecutor in this case.

Sir ARTHUR CHANCE expressed sympathy with Dr. Magennis in regard to the short notice he had had.

Dr. CATON said that it was with great reluctance that many members of the Council had been forced to the conviction that the examinations in question were not satisfactory. This opinion was the cumulative effect of a very large number of points that had been brought forward not only now but in the past. They felt that there was a need either for reform or for extinction. He was, however, strongly opposed to the motion being sent to the Privy Council. It should be sent to the body immediately concerned so that it might have an opportunity of considering it and making the necessary reforms. If no reforms were made then the Council ought to send this or a similar motion to the Privy Council.

Dr. SAUNDBY hoped that the motion would not be postponed, but that it should be passed and sent to the Apothecaries' Hall of Ireland.

The amendment of Dr. Macdonald was rejected on a show of hands.

The motion of Sir Charles Ball was carried by 29 votes to 2. Three members did not vote and four were absent.

Dr. NORMAN MOORE moved that "this resolution, together with the report of the Examination Committee on the summary of particulars, be forwarded to the Apothecaries' Hall of Ireland for its information."

Sir HENRY MORRIS seconded. He thought that it was reasonable that some indication should be given to the Apothecaries' Hall in what way modifications or additions to their curriculum and examinations should be made.

Dr. MAGENNIS said that it would be unfortunate if the authorities of the Apothecaries' Hall, who were anxious to improve and who had improved their examinations, were not assisted by the Council as to the manner in which they ought to improve them. Any recommendations or suggestions made by the Council to the Apothecaries' Hall, he would guarantee, would be stringently carried out.

The PRESIDENT remarked that the Council could not undertake the duty of governing a body which was capable of governing itself. The Council could not both pass the final verdict on these matters and at the same time be responsible for the regulations.

The motion was agreed to

The Pharmacopœia Committee.

The PRESIDENT submitted the report of the Pharmacopœia Committee, which was in the following terms: "Up to the end of the year 1914 the total sales of the British Pharmacopœia (1898) amounted to 46,535 copies, and those of the Indian and Colonial Addendum amounted to 4529 copies. The British Pharmacopœia (1914) was issued in pursuance of the Council's instructions on Dec. 31st, 1914. Up to May 29th, 1915, the number of copies sold amounted to 17,239. As the first issue of 20,000 copies is thus nearly exhausted, a second issue of 10,000 copies has been prepared and will shortly be ready for distribution. The opportunity has been taken to amend the typographical faults which were noted in a slip attached to the first issue, together with a few others of minor importance. The only alteration in the text which calls for notice is that referring to the specific gravity of guaiacol. This should read 1·116 to 1·140. The Government of India has intimated that no special edition of the Pharmacopœia for use in that country will on this occasion be required. The Belgian Government has courteously undertaken to inform foreign governments, who were parties to the international agreement of 1906, of the publication of the British Pharmacopœia (1914) and of the manner in which effect has been given therein to the recommendations the agreement contained. The Finance Committee have furnished figures relating to the expenditure of the Pharmacopœia of 1914, as compared with that on the Pharmacopœia of 1898, which show that a saving of about £2205 has been effected in the case of the former. A large proportion of the saving is due to the advantageous arrangements made with the printers and publishers, and to economy in the expenses of the committee. The committee have received with regret the resignation of their secretary, Dr. Nestor Tirard. He has held the office for 20 years, and during that time has seen through the press the Pharmacopœia of 1898, and has acted as senior editor of the Pharmacopœia of 1914. His services to the committee have been many and valuable, and have been rendered in a manner which won for him its constant esteem. His important duties as commanding officer of the 4th London General Hospital occupy his time so fully that he is now constrained to limit his other engagements. The committee, in accepting Dr. Tirard's resignation, conveyed to him an expression of their high appreciation. They suggest that the President should be authorised to express to him, in the name of the General Council also, its grateful acknowledgments of his able work on its behalf."

The PRESIDENT, in submitting the report, drew special attention to the passage in which the committee expressed its regret at the resignation of Dr. Tirard and its high appreciation of his work. He was sure that the Council would desire to authorise him to convey to Dr. Tirard the expression of their appreciation of his long services.

MEMBERS: Hear, hear.

The PRESIDENT said that the members of the Council all recognised Dr. Tirard's devotion to the country, which had induced him to lay down his office as secretary of the Pharmacopœia Committee in order that he might fully devote himself to his military duties.

It was then agreed by the Council that the President should be authorised to convey to Dr. Tirard "its sense of the very valuable services which he had rendered in the course of the last 20 years as secretary of the Pharmacopœia Committee and editor of the British Pharmacopœia, 1914."

Students' Registration Committee.

A report was submitted from the Students' Registration Committee.

On the motion of Dr. NORMAN MOORE it was resolved (1) "That satisfactory evidence as to visitation having been received, Reading School, Blaenau Festiniog County School, and the Intermediate County School, Towyn (Merionethshire), be added to the list of recognised teaching institutions approved by the Council"; and (2) "That the City of Dublin Technical Schools be added to the list of recognised institutions approved by the Council, so far only as their day classes are concerned."

Appointment of Registrar.

On the motion of Dr. NORMAN MOORE, seconded by Sir HENRY MORRIS, Major Norman C. King was reappointed Registrar for the ensuing year.

The Council adjourned.

FRIDAY, JUNE 4TH.

Penal Case.

The Council resumed the consideration of the case of Mr. A. B. Kramer.

The PRESIDENT said: I have received a telegram from Mr. Kramer: "Sorry unable to appear. Letter following by express messenger." The letter has just come. It says: "I wish to apologise for the inconvenience and delay caused by indisposition yesterday, and after a bad night I feel quite unable to appear at the Council this morning as wired a short time ago. If the Council will be good enough to postpone the hearing until I am well enough to appear all the accusations brought against me will be fully answered." A telegram and a special messenger have been sent to Mr. Kramer stating that the case is proceeding and his presence is desired. No medical certificate has been sent indicating that he is unable to be present. I have asked the Insurance Commissioners to allow one of the local officials, Mr. Groves, to come as a friend of the Council and give us such information as is in his power, not as a witness upon either side.

Mr. GROVES, clerk to the County Insurance Committee of Northamptonshire, said that intimations of the time at which transfers of panel patients could be made were inserted in the local newspapers. It was therein stated that the notices must be in before Dec. 1st. He described the procedure adopted in the transfer.

The PRESIDENT: Do you issue a blank card to a person who has not applied for a transfer?

Mr. GROVES: Certainly not.

Were there many applications for transfer in the district of your committee last November?—Approximately 240 in the whole of the county.

Can you say whether there were many applications for transfers in Bulwick?—I can tell you how many Mr. Kramer had transferred to him. There were 91 cases in which people transferred from another doctor to him.

Of the 91, had all been preceded by an application on behalf of the insured person for the transfer?—Yes.

Do you take any steps to ascertain the authenticity of a notice to transfer?—No. We accept the letter. We verify that there is an insured person. We do not verify the handwriting or the signature.

Mr. GROVES handed in the original applications for transfer in a number of cases.

The PRESIDENT: Will you look at these cards? (Certain cards were handed to Mr. Groves.) Will you look how the body is filled up? Is that in the same writing as this application?

Mr. GROVES: I should think so. In his experience the insured person frequently only signed the card at one place.

Mr. PARKER addressed the Council.

The PRESIDENT stated that the messenger who had been sent to Mr. Kramer reported that he had left his lodgings and it was not known where he had gone.

After deliberating *in camerâ*, the PRESIDENT said: "I have to announce in public that the Council have adjudged Alfred Bertie Kramer to have been guilty of infamous conduct in a professional respect, and have directed the Registrar to erase from the Medical Register the name of Alfred Bertie Kramer."

Dental Education and Examination Committee.

Mr. TOMES submitted the report of the Dental Education and Examination Committee. He said that an application had been received from the National University of Ireland that their degrees of Bachelor of Dental Surgery and of Master of Dental Surgery should be recognised, particulars of the curriculum prescribed by the University being submitted. In accordance with the recommendation of the committee he moved: "That the degrees of Bachelor and Master of Dental Surgery of the National University of Ireland be recognised."

Dr. KNOX seconded.

The motion was agreed to.

Mr. TOMES said that an application had been received from the University of Melbourne that their degree of Bachelor of Dental Surgery be recognised. This degree was only obtainable by those who had gone through the courses for the Licence of Dental Surgery, and this licence was granted to them. The licence was already recognised by the Council, so that the question was merely the admission of the Bachelor degree to the columns of the Dentists' Register. He concluded by moving that "the application of the University of Melbourne should be acceded to."

Dr. KNOX seconded.

The motion was agreed to.

Mr. TOMES went on to refer to a passage in the report which stated that "an application has been received from the University of Illinois (i.) that its College of Dentistry be recognised as a teaching body; (ii.) that its degree of Doctor of Dental Surgery be recognised. With regard to (i.) it is pointed out that the recognition of schools as teaching bodies does not lie in the hands of the General Medical Council; with regard to (ii.) the curriculum extends to only three years instead of four as in Great Britain. The information furnished as to the scope and conduct of the examinations is quite insufficient to enable the committee to judge of them." He moved that "the application of the University of Illinois be not acceded to."

Dr. KNOX seconded.

The motion was agreed to.

The Alleged Deficiency of Qualified Dentists.

In its report the Dental Education and Examination Committee narrated the steps which had been taken in pursuance of a resolution of the previous session under which the committee was asked to consider and report on questions affecting the dental curriculum and the supply of dental practitioners. Power was given to the committee to communicate with the licensing authorities on the subject. The report stated that a letter had been sent to the licensing authorities on March 11th by the acting registrar. It was in the following terms:—

"At the November Session (1914) of the General Medical Council Dr. Newsholme, medical officer of the Local Government Board, called attention to the fact that the number of dental practitioners registered in the Dentists' Register showed no appreciable increase since the institution of the Register 36 years ago. The total number on the Dentists' Register for 1879, which included all those in practice prior to the passing of the Act in 1878, was 5289, of whom 9·17 per cent. possessed dental qualifications granted by the licensing bodies: the total number in the Register for 1915 is 5426. A steadily growing proportion, now amounting to 71·08 per cent., are registered in virtue of qualifications granted by the licensing bodies, but the additions from this source are not more than sufficient to make up the loss by death or removals. It was suggested that the supply of registered dentists is insufficient to meet the increasing needs of the population; and it was pointed out that in recent years dental practice by unqualified persons had undergone a very great extension in many parts of the country. The General Medical Council expressed no opinion on the statements made in the course of a short discussion, but instructed its Dental Education and Examination Committee to consider them, to make on behalf of the Council such inquiries as might be of service, and to report to the Council at its session in May, 1915. Amongst the questions suggested for consideration by the Committee are the following:—Assuming for the moment that there is a real shortage of qualified dentists, and that it is desirable in the public interest that their numbers should be increased to a considerable extent: (1) To what extent is the deficient supply attributable to the failure of the existing law, as judicially interpreted, to check unqualified practice? (2) To what extent is it due to the inability of candidates to pass the required preliminary examination in Arts before commencing professional study. (3) To what extent is it due to the length, stringency, and expensiveness of the courses of professional study and examination required for qualification? If the points enumerated in the latter (3) be thought to be important factors: (4) What modifications, if any, are possible in the direction of lightening the present curriculum without impairing the sufficiency of the guarantees for efficient practice contemplated by the Dentists Act? As one of the authorities interested you are invited to communicate to the Council's committee any conclusions your experience may have enabled you to form on these points, and upon the subject of dental education and qualifications in general. Such communications will, if it is so desired, be treated by the committee as confidential, in so far as that their source will not be disclosed without the authorisation of the body concerned."

The report went on to state that a covering letter was sent by the chairman of the committee to each of the dental schools, in which the further inquiry was made whether the supply of students was or would be affected by the ultimate selection of one or other of the alternative methods of obtaining instruction in mechanical dentistry—viz., at the hands of a private practitioner or in a department of a dental school. The committee regretted that as it had up to the present received answers from only about half the number of the licensing bodies and from a somewhat larger proportion of the teaching bodies, it was not in a position to make a complete report nor to make any recommendation. It was within their knowledge that some of the licensing bodies who had not yet answered had the matter under careful consideration, but were not yet in a position to make their report.

Dr. SAUNDBY mentioned that the body which he represented was considering the matter.

Sir HENRY MORRIS said that his College was also considering it. A joint committee was considering the matter to see whether any change could be made which might be advantageous to the public and the profession.

The report was adopted.

National Insurance Act Committee.

On the motion of Dr. KIDD, Sir Arthur Chance was appointed an additional member of the National Insurance Act Committee.

End of the Session.

At the close of the session of the Council on Friday, June 4th, it was intimated that Major N. C. King, the Registrar, who was present in khaki, had been instructed to report himself for duty with the 3rd Battalion of the London Rifle Brigade at Tadworth Camp. Major King received the good wishes of the Council on his departure. It is understood that he will be called to an important command in his regiment.

On the motion of Dr. NORMAN MOORE, a vote of thanks was passed to the President for his services in the chair.

The session then came to a conclusion, and the Council rose to meet again in November.

THE VALUE OF ANTITYPHOID INOCULATION.

IN view of the opposition that continues to be made in some quarters to the use of antityphoid vaccination, we are enabled, through the courtesy of Dr. L. S. Mackid, to publish the following report made by him as medical officer at Calgary, Alberta, Canada, to the Canadian Pacific Railway, on the results of a systematic antityphoid vaccination of the company's employees extending over the three years 1911–13:—

With the large increase of the population in the western country during the last few years it has been a hard matter to keep pace in a sanitary way with the growth. This is true not only of this country, but of all new districts which open up, and as a result we suffer from those diseases which follow insanitary conditions. Our worst enemy in this field is typhoid fever. To a large company like the Canadian Pacific Railway the presence of typhoid means a very great loss, much more than one would imagine without going into it thoroughly. We have already done our utmost to fight the condition by sanitation, and have been greatly rewarded for our efforts. We followed pretty closely the rules as laid down by the military authorities covering the sanitation of the camps. With the introduction of typhoid vaccine into the armies of the world and the marvellous results that have been recorded we decided to introduce it into the railway world.

To give an idea what typhoid means to a big company a few figures are given. When a man goes down with typhoid he is incapacitated for a period of at least four months, or in terms of days about 120 days. In the year 1911 there were about 320 cases of typhoid fever on the Alberta Division, which means a loss of time to the company of 38,400 days. Again, this disease comes just at the time of the year when these men are most needed, that is, in the fall of the year, when the work is being finished before the oncoming winter, and when the company is getting the harvest away and placing coal and other winter supplies all over the country. Now if it means all this to the company what does it mean to the man himself? It means that he is incapacitated just at the time when there is plenty of work for him to do. It means a heavy raid on his financial condition for medical, hospital, and convalescent expenses at the time of the year when he can least afford it.

Initial Difficulties.—Technique and Reactions.

Having all this in our minds we decided to approach the company and get their coöperation, and were met more than half-way in the scheme. This, however, was only the starting point, as we still had to get the consent of the men, as it was upon them that the vaccine had to be used. We interviewed as many as possible and placed the proposition before them as clearly as we could and were more than satisfied to find that a great number entered in the work, sufficient, at least, to warrant our going ahead with the vaccination. All the district surgeons were also eager to start ahead with the work as soon as possible. We soon found out that our troubles were only commencing. The men all had very painful recollections of having been vaccinated for small-pox and immediately put typhoid vaccination in the same category. We were also dealing with a non-disciplined lot of men whom we could not force to be vaccinated, so it had to be optional, and in several places it required a great deal of patience and some hard talking to convince them that it was being done for their own good.

For the complete treatment we used three inoculations at intervals of 10 days. The first inoculation consisted of 8 minims containing 500,000,000 killed bacteria. Ten days later a second inoculation of 15 minims containing 1,000,000,000 bacteria, and again, 10 days later, 15 minims of 1,000,000,000 bacteria. The site of the inoculation was chiefly the upper arm, either at the insertion of the deltoid muscle or the back of the arm into the triceps. These injections were done as far as possible in the afternoon, so that the reaction would be all over by morning. A few hours after the injection the reaction commenced like an oncoming attack of "la grippe"—slight headache, general soreness, lassitude, slight elevation of temperature, and in some cases slight nausea. This lasted for about 10 hours and was then completely gone. The local reaction was redness, pain, swelling, and heat. This lasted longer than the general symptoms, but was pretty well over in 48 hours. We used the ordinary hypodermic syringe with several needles, which were sterilised by boiling, a separate needle being used for each inoculation. The site of inoculation was simply prepared by painting with iodine, and after the injection was done no dressing was applied. Some of those inoculated showed more severe symptoms than the rest, such as syncope, which lasted for a short while, and was recovered from without any treatment. Examination of these men showed no reason why it should have happened. We found no condition that we could classify as a contra-indication to vaccination. As to the time lost as the result of the vaccination, about 95 per cent. of the men kept right on at their work. The other 5 per cent. were laid off for not longer than 48 hours.

Results Showing the Value of Antityphoid Vaccination.

In 1912 there were about 5500 inoculations done with two cases of typhoid developing amongst them, and one of these two had only received one injection and came down with the fever a few days later, so that it is possible that he was coming down at the time of the inoculation. Among the other men living under exactly the same conditions as the men who were vaccinated there were 220 cases of typhoid.

One of the most striking results of the vaccine was in a gang of about 35 men, who were camped within the city limits, and who absolutely refused to be vaccinated at first. In this camp 11 cases developed, and then the men began to ask to be vaccinated, which was done, and following it we had the only other case.

Dr. Maclaren, Dr. King, and Dr. Green used the vaccine in the treatment of cases, using at each injection small doses, the first of 1,000,000 bacteria and doubling it every fourth or fifth day. They found that in those cases which were treated from the beginning of the disease the complications were almost *nil*, although it did not lessen the course of the disease at all. Those cases that were well advanced before they came in under treatment showed no effect at all, the vaccine here being more harmful than beneficial.

For 1913 we have not as yet received all the reports, so can only give an incomplete report. So far the total number vaccinated is 2771, with 1 case developing fever, and against this there are reported 70 cases amongst the non-vaccinated. When all the reports are in, these figures will probably be between 8000 and 10,000.

The conclusions that we draw from this work are :—

1. We have a very valuable aid for the prevention of typhoid fever in the use of vaccine.
2. The name of vaccination should be abolished and inoculation should be used in its place.
3. When cases of typhoid come under observation early enough most of the complications can be lessened.
4. The use of the method should be advocated in all places where men are to be in camp and under doubtful sanitary conditions for any period of time.
5. The period of immunity is apparently indefinite, probably equal to that produced by a single attack of typhoid.

Since this report was made the various lists to complete the work for 1913 have been sent to us by Dr. Mackid. The additional number vaccinated was 8400 with only the one case developing, making a total vaccinated of 13,900, among whom 3 cases of typhoid developed. The figures read as follows;—

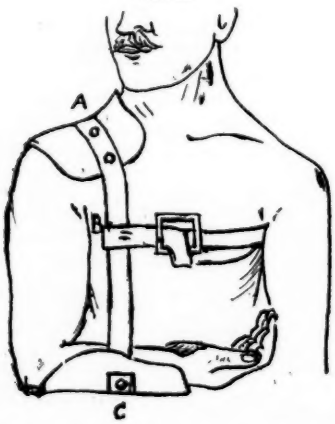
Total number men employed	24,000
,, ,, vaccinated	13,900
Number of cases among non-vaccinated ...	290
,, ,, ,, vaccinated	3

New Inventions.

A USEFUL SHOULDER-SPLINT.

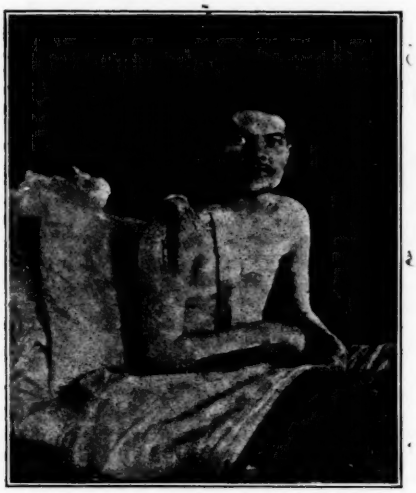
AFTER excision of the shoulder-joint it is often difficult to give the necessary support to the arm, and a splint which acts perfectly in the sitting position may be quite unsuitable when the patient is lying down.

FIG. 1.



The one here described is very comfortable and easily made, as well as cheap. It is S-shaped in side view, fitting *over* the shoulder and *under* the forearm. It consists of a kidney-shaped shoulder-piece (Fig. 1) A, of thin zinc or sheet steel, 7 × 3½ inches, or wide enough just to clear the neck muscles and the acromion on either side. This is riveted to the upper end of a piece of galvanised iron strap 1¼ inches wide and 1/16 inch thick, so that it (the latter) can be bent on its long axis to fit the chest. The splint C for the forearm is approximately 10 inches long and of the ordinary trough pattern, or

FIG. 2.



long enough to reach to the wrist. It will be found that the forearm varies very greatly even in persons of the same height. This part of the splint is riveted to the upturned end of the upright strap-shaped bar at C. The whole splint is kept in place by a strap and buckle passed from a slit in the shoulder-piece behind and under the opposite axilla. The splint must, of course, be moulded and bent to a perfectly snug fit, and as a refinement a still more perfect result can be obtained by inserting a piece of house flannel soaked in plaster-of-Paris under the shoulder-piece, padded with wool, when the splint can be bent to fit this at leisure. The arm is bandaged to the side at night and the wound can be dressed without removing the splint.

The cost of the above is trifling and, what is more, the materials can be got even in an out-of-way French town, and it can be put together by anyone of the slightest mechanical ability.

J. CROPPER, M.D. Cantab.
Anglo-Ethiopian Hospital, France.

A RUSSIAN WOMAN DOCTOR.—According to the *Novoe Vremya* M. G. Stanishevskaya has been appointed *privat-docent* of the chair of pathology in the Imperial Novorossisk University. She is the first woman to receive this appointment in a Russian university. She finished her medical studies in Nancy in 1899, passed her examinations in the Moscow University in 1900, and in 1913 presented and defended a treatise for the degree of M.D.

BIRMINGHAM HOSPITAL FOR NERVOUS DISEASES.—The second annual report of the Birmingham and Midland Hospital for Nervous Diseases states that the new cases treated were 1093 and the total attendances numbered 13,215. Among the conditions most frequently dealt with were epilepsy 122 cases, neurasthenia 176, acute neuralgia 48, hysteria 34, neuritis 23, alcoholism 20, dementia and insomnia 18 each, and melancholia 16. The experience of the last two years has emphasised the need for beds. There has been a great increase in the employment of massage, and electrotherapy has been used with considerable success, so that the expenditure of £300 for the installation of more up-to-date electrical appliances has been sanctioned. The year's income amounted to £892, which left a favourable balance after payment of expenses of £143.

THE LANCET.

LONDON: SATURDAY, JUNE 12, 1915.

The Metropolitan Hospital Sunday Fund.

THE public is truly generous in its contributions to charity, and on the whole our general benevolence takes a practical rather than a sentimental form. Before the purse is opened the prospective giver seeks for proof that the exercise of his charity is needed. The professional beggar and the secretary of the faked charity both know this well, and will provide with fluent pen all the documentary evidence that the most exigent can desire, but while the harvest of the charlatans is great—far too great—the written word never speaks with the same force as the revealed fact. A mining disaster, a shipwreck, or a factory explosion appeals to the reason as well as to the imagination, and the realisation of the need at once calls forth a hearty response both in money and in personal help when the latter is required. It is the visible proof of their work that enables the hospitals of the metropolis to secure the amount of voluntary support that they receive, and in the same way it is the unrevealed character of much hospital energy which prevents that support from being as large as it should be. For there is little or nothing to stir the imagination of the public and help them to comprehend the enormous amount of sickness and suffering that is being ministered to daily within the walls of our great hospitals. In one large London hospital alone over 16,000 in-patients, nearly 170,000 out-patients, and 3917 maternity cases are treated yearly, and the Metropolitan Hospital Sunday Fund, in common with the King's Hospital Fund for London, exists to help 126 hospitals, to say nothing of other institutions. This year the privacy which surrounds hospital work has been modified by circumstances; the case of the sick and wounded soldiers has been public property and there is a wider knowledge of what hospitals really can do. The figures of admission to the London hospitals will be multiplied owing to the war, and will in themselves make a more powerful appeal than usual on behalf of the sick and suffering, but figures do not convey to the mind the vivid picture which the interior of our hospitals presents to the eye. It would not be practicable or decent to admit into the wards of our hospitals everyone who had a desire to see for himself the work of healing which is there carried on, but the hospital treatment of our wounded soldiers and sailors has been so ably described by the public press that there will be no excuse for not realising at any rate one side of hospital activities The skill and experience of the medical, surgical, and nursing staffs of our voluntary hospitals, and the completeness of equipment of these institutions, naturally make them the best possible places for treating such of the wounded as can be moved from the seat of war, and the hospitals have responded most generously to the call which the country has made upon them. This has not been done without entailing an expenditure severely taxing their already overburdened resources, and in many cases the burden has been increased by the necessity for extending existing accommodation and the difficulty of maintaining an adequate personnel.

If the public could fully realise the enormous amount of good work that is being done by our hospitals, not only on behalf of the poor, but indirectly also in the interests of those who are able to pay for medical treatment, there would, we feel sure, be a larger response to the yearly appeal which is made on behalf of the London hospitals by the Metropolitan Hospital Sunday Fund. For it is in the wards of our hospitals and in the laboratories of our medical schools that the skill and experience are gained which are demanded from the medical man by the whole community. And not only does the individual benefit, but collectively the gain is immense, for the general improvement in public health which has so characterised the later years of our era is due largely to the facilities for experimental study in chemistry, in bacteriology, and collateral sciences which are afforded by laboratories attached to or worked in connexion with our hospitals. Again, the coöperation of hospitals with the large army of workers in the sphere of tropical diseases has helped to make vast tracts of our colonial possessions inhabitable by the white man, thus extending the Empire and adding to our prosperity by increasing trade. These are only some of the great benefits which have accrued under our voluntary hospital system, making it, whatever may be its faults and failures, of inestimable benefit to all classes. To this record, however, must now be added the wonderful response to the call of war. Without the splendid initiative and organising power of the managements of our leading institutions this response could not have been made, and the great funds which collect on behalf of these charities have played a fine part in the national struggle by helping to keep the hospitals at full working strength. The Metropolitan Hospital Sunday Fund is one of the three great agencies which help to maintain the London hospitals, its main purpose being to collect money from the various religious congregations. Primarily the appeal is made through the churches, chapels, and missions of London, but in reality the large sums that are yearly distributed among the hospitals are made up of congregational collections, with the addition of private donations and legacies. As this second source of income must of necessity fluctuate it is of the greatest importance that every effort

should be made to ensure an adequate collection on Hospital Sunday. Of recent years congregational collections have shown a steady decline, owing in a great measure to the fact that a large number of well-to-do people spend the week-end out of town. Appeals have been made to absent church members both before and after Hospital Sunday, but the result has not been at all satisfactory. The week-end habit should not, however, operate to the same extent this year, for there is more serious work on hand than these recurring holidays imply. Large calls have been made already upon the charitable in connexion with the war relief funds, huge liabilities are piling up ahead of all of us, and many of those from whom help was always forthcoming are serving their country at the front. These things will certainly militate against the Metropolitan Hospital Sunday Fund this year, and unless special efforts are made the collection which takes place to-morrow may suffer.

But never has the need for help been greater in the hospitals of the metropolis and never has it been more deserved than at the present time. The hospitals have been deprived of many of their valued workers who are giving their services directly to the men who are fighting abroad, while those who remain at home have been working at serious pressure to make up for the deficiency thus created. Yet, in spite of this, not only have the sick poor been attended to with the care and efficiency of normal times, but, in addition, thousands of the sick and wounded from the front have received devoted care in these institutions, removed from the terrible environment of the war area. This all means increased work, carrying with it an increased expenditure which has taxed the resources of the managers of our voluntary hospitals in some cases to breaking strain; and such facts should suffice to bring home to everyone who can help even in the smallest way the crying need for an increased financial support of the metropolitan hospitals. Without the aid of hospitals as centres for the training of nurses there would have been a deficiency in an important auxiliary to all medical and surgical treatment, and our hospitals have made many sacrifices in order that a sufficient number of nurses might be trained at short notice. To prompt action in this direction many must owe their restoration to life and health. For many years the management of the Metropolitan Hospital Sunday Fund has placed before itself the ideal of collecting for the medical charities of London and the vast outlying districts the sum of £100,000 on each Hospital Sunday, but this total has never been realised. The present moment is an admirable one for the public to show their gratitude to the London hospitals by placing at the disposal of the managers of the Metropolitan Hospital Sunday Fund a larger sum than usual—why not their ideal £100,000?—with which to lighten the burden of debt which presses so heavily upon many institutions.

Medical Organisation and the War.

TWO great questions are concerned when we consider medical organisation in respect of the war. They are, first, the engagement of a sufficient personnel, and, secondly, its employment to the best advantage. The first question has been receiving the close attention of the medical authorities at the War Office, an Emergency Committee of the British Medical Association is considering it, and a strong Emergency Committee, with Dr. NORMAN WALKER as convener, has taken in Scotland practical steps towards answering it. But the second question is of equal importance, if only because a personnel that is working to the best advantage with its material is more economical in its employment of men than one where there is overlapping, or where there are many round pegs in square holes. The position of the medical service with the Expeditionary Forces depends, as it always has done, on the military situation. But great experience has now been gained. Tried men have been collected, and to a certain extent these are being detailed for the posts most suited to their capacities, so that some large general lessons in pathology are being learned. There remains, however, in the minds of many a feeling that all the splendid work might be more fruitful, might be simplified, and at the same time have its value disseminated, if there were some general supervision of work done; possibly it would then be found that men could be spared in some places for more suitable work in others.

In the hands of such surgeons as Sir ANTHONY BOWLBY and Sir GEORGE MAKINS, of such physicians as Sir WILMOT HERRINGHAM and Sir JOHN ROSE BRADFORD, each of whom is also a tried organiser and man of affairs, we may be sure that nothing has been wanting in the hospital treatment through the various areas that organisation would ensure; but, as we have pointed out before, each centre must work largely upon its own lines, as there is no recognised scientific supervision, while official means of intercommunication have not been established. At any given hospital as its staff changes men come in who have not had experience on the spot, and there is no machinery by which to place them in immediate possession of the lessons learned by their predecessors. The tendency to revert to classical treatment is therefore inevitable, and ground may have to be gone over again with clear waste of energy in the many directions in which classical treatment has to be modified to meet new and unexpected conditions. This may be going on in many localities, while it is clear that local experience will vary and local standards of practice will vary also, so that the lesson to be learned in one centre is not the same necessarily as that to be learned at another. It speaks volumes for the high standard of medical and surgical practice of this country that so many hospitals should have been staffed with good result by officers who have relied upon their own initiative for treatment,

but general supervision from the centre would none the less be welcome. It is difficult to see how men at any given hospital can tell whether their patients, under the treatment which is being adopted, are doing as well as similar patients in other hospitals. There is not a definite medium for the interchange of knowledge and it is hard to say whether certain cases are being treated at the most suitable points in the lines or whether more sorting of material would not be of advantage both to medical men and to patients. If there were regular collecting and collating of results by an advisory body whose business it would be to inspect treatment all along the lines, from what is practically the front through the intermediary hospitals to the base hospitals, we feel that practical results would follow. There is no definite suggestion that the medical service is not good, and in numberless directions its achievements speak for it as wonderfully efficacious, resourceful, and devoted; the point is that its proven virtues would operate more promptly and widely under some central control. The work done cannot all be equally high in standard. Where it is not good at some point in the periphery central control would reinforce it. Where it is good the peripheral efforts would be recognised, the lessons learned in that place would be applied in another, investigation and scrutiny would be followed by coördination. In short, a service with automatic limbs would be endowed with a brain. In an epilogue to the address by Sir ALMROTH WRIGHT published in THE LANCET in April, he suggested that an Advisory Committee having much the same functions as those that have been indicated should be instituted. This body, to cover the field, should consist of a surgeon, a physician, and a bacteriologist. To these we would add a second surgeon to act as secretary and registrar to the committee, and we cannot help thinking that the Director-General of the Army Medical Service would find the recommendations of such a body of great assistance. Nothing, it must be clearly understood, can be done without the approval or order of the Director-General of the Army Medical Service. But such an Advisory Committee would, we are sure, enable him to discharge his onerous and important duties with less chances of waste of time, with less risks of re-duplication of labour, or of overlapping. The Director-General, while absolutely retaining his own authority, and retaining also the right to be advised by other distinguished officers, would look to such a committee to supply him with the results of experience and practice all along the lines, when it is quite likely that there would emerge general recommendations for treatment analogous to those which already prevail in the cases of tetanus and of typhoid fever. The Advisory Committee would be in a position also to suggest the best distribution of cases, so that we should not hear that "so many" cases had been relegated to a certain man, but rather that "such and such" cases had found their way to him.

We make these suggestions with the less diffidence because we know that something in the indicated directions has found favour in the sight of high authority. There is no intention to imply that the medical work with the Expeditionary Forces has not been good, for it is admitted on all hands that the Royal Army Medical Corps has earned the gratitude of the country and that the coöperation of civilian medicine and surgery has been valuable in the highest degree. But the war has already been a long one, and may continue for some time. Many therapeutic lessons have already been learned, and surely it would be advantageous to make a move in organisation which would place these lessons fully at the disposal of future workers.

Annotations.

"Ne quid nimis."

PRECAUTIONS AGAINST AERIAL ATTACKS.

THE dangers of an aerial raid may be said to be threefold. There is, first, the actual explosion of the dropped bomb which may instantly destroy life by the intense concussion formed, this acting directly or indirectly; there is the chance of poisonous gases being released; and, lastly, the incendiary bomb may cause a serious outbreak of fire. It is well to be on our guard against these contingencies. Of course, little or nothing can be done in the first contingency. Concealment in a well-protected shelter, as in an underground cellar, may be possible for some people in some circumstances, but the number of people to whom the advice applies is small. The protection of the household against poisonous or asphyxiating gases discharged by bombs at once suggests the same measures taken by our soldiers in the trenches. It is well to remember that most, if not all, asphyxiating gases are acid in character and that therefore they can generally be neutralised by the use of an alkali. The available alkali in every house is common washing soda. The bath towel made of netting with a big mesh when soaked in a 10 per cent. solution (1 lb. in one gallon of water) of this salt, and the excess squeezed out, would enable, in all probability, a person to breathe in an atmosphere contaminated by chlorine, nitrogen oxides, or sulphurous acid gas. The towel should be in double or quadruple layers so as to expose as much as possible the contaminated air to the neutralising action of the alkali. A dish-cloth or a well-squeezed-out sponge soaked in the same alkaline solution would answer equally well. The sponge forms a very comfortable and efficient respirator if thoroughly squeezed out before application. It adapts itself well to the mouth and nose. The breathing should be slow, inwards through the mouth and outwards through the nose. The protection of the eyes, unless special goggles are used, is more difficult, the simplest precaution being to shut them tightly in the event of the gas causing extreme irritation, until a purer atmosphere is reached. In any case it is well to learn how to move in an enforced darkness in one's own house. In the event of an outbreak of fire the sooner steps are taken the better chance there is of keeping the outbreak local. There is nothing

so effectual as a wet blanket thrown over the scene of conflagration, followed by the application of buckets of water on the blanket. We strongly advise all those who possess gardening hose to have it near at hand for use in the house. Small fires can be quenched by throwing upon them a solution of ammonium chloride mixed with common salt; this when used at the outset is often effective. There are many chemical extincteurs on the market, some good, some worthless, but all requiring more or less technical management. It is doubtful whether the public should be advised to incur the outlay which their installation in the house involves, especially as a pail of ammonium chloride solution and a syringe would probably meet the case just as well. The simpler the precautions are the better, for as a rule simplicity in the matter of appliances generally means much less nervous handling in moments of excitement and a more effective dealing with the situation. The public would be well advised also if on retiring they turned off all lighting services at the meter and for night use reverted to candles. The house might be placed in great danger if gas or electric mains were damaged by an explosion or fire. It is well to remember what potentialities these services mean when they are let loose. The switch and the tap will control them, but if any part of the system is destroyed behind these the outbreak may well defeat all attempts to subdue it.

BACTERIAL FLORA OF WOUNDS.

THE attention of bacteriologists has naturally been prominently drawn to the bacterial infection of wounds produced during the present war. Investigations are being carried out as to the nature of the organisms present both in this country and in France. The results hitherto obtained are interesting, but can only be considered as experimental and preliminary to a combined investigation of scientists and surgeons. The National Research Committee is rendering valuable service by contributing grants towards the expenses of such inquiries. In another column we publish a communication from three observers who have been working on the bacterial flora of wounds, Dr. L. S. Dudgeon, Mr. A. D. Gardner, and Mr. F. Bawtree. The investigation was carried out in this country so that no records are given which refer to the type of bacteria found directly after injury. It is interesting to note that there is the closest similarity between the bacteriology of severe injuries of the soft parts produced by shrapnel and infected by manure and a street accident infected by horse-dung. There is usually infection of the damaged tissues with the B. aerogenes capsulatus, streptococci, and coliform bacilli. The authors express the opinion that the mere presence of the B. aerogenes capsulatus is not the important factor in a wound, but it is the presence of this organism in tissues which are under considerable increase of tension that is of such extreme importance. This would help to explain the beneficial results obtained by freely laying open the parts affected. Especial attention is paid to those wounds in which pathogenic anaerobes were found. Twenty-one wounds yielded cultures either of B. tetani or of B. aerogenes capsulatus, or of both. With a single exception every wound was also infected with aerobic bacteria in association with the anaerobes. The frequency with which B. coli appeared with B. tetani suggests that its presence may be particularly favourable for the survival of this anaerobe. Although no reference is made to treatment in this paper, the opinion is expressed that the prophylactic injection of antitoxin has been the means of saving the majority of the patients from serious disease arising from wound infection. The communication is of considerable interest from a bacteriological point of view, and the scientific investigation is preliminary to the application of measures intended to antagonise infection. We trust that a practical outcome of the research will soon be forthcoming.

ROYAL COLLEGE OF SURGEONS OF ENGLAND: THE ELECTION TO THE COUNCIL.

ON Thursday, July 1st, a meeting of the Fellows of the College will be held for the purpose of electing five members of the Council. The vacancies are due to the retirement in rotation of Sir Rickman J. Godlee, Mr. C. W. Mansell Moullin, Mr. Charters J. Symonds, and Mr. Charles Ryall, and by the death of Mr. C. B. Lockwood. There are 24 members of Council, and three of these retire each year, but Sir Rickman Godlee did not retire last year as he was President at the date of the election. The following list gives the dates at which the several members will retire:—

1916: Sir A. Pearce Gould (first elected 1910); Sir W. Arbuthnot Lane; Mr. W. F. Haslam.

1917: Mr. W. Harrison Cripps (first elected 1905); Sir W. Watson Cheyne, the present President (first elected 1897); Mr. J. Stanley Boyd.

1918: Mr. Bilton Pollard; Sir J. Bland-Sutton.

1919: Sir Berkeley G. A. Moynihan; Sir G. H. Makins, Vice-President (first elected 1903); Mr. L. A. Dunn.

1920: Mr. D'Arcy Power; Sir F. S. Eve, Vice-President; Sir Anthony Bowlby, K.C.M.G., Vice-President (first elected 1904).

1921: Mr. J. Ernest Lane; Mr. H. J. Waring.

1922: Mr. C. A. Ballance, M.V.O. (first elected 1910); Mr. W. Thorburn; Mr. W. McAdam Eccles.

For the 5 vacancies there are 9 candidates. Of the retiring candidates only two, Mr. Charters Symonds and Mr. Charles Ryall, offer themselves for re-election. The other candidates are the following, the figures in brackets representing the date of obtaining the Fellowship:—Mr. J. B. Lawford (1885), Mr. T. H. Openshaw (1886), Mr. H. B. Robinson (1887), Mr. W. G. Spencer (1887), Mr. F. F. Burghard (1888), Mr. H. F. Waterhouse (1890), Mr. P. Macleod Yearsley (1893).

A CASE OF GENERALISED PNEUMOCOCCAL INFECTION.

A REMARKABLE case of this nature is reported by Dr. D. A. Cameron in the *Medical Journal of Australia*, vol. i., 1915. A girl, aged 7 years, was taken ill on the morning of Oct. 22nd, 1914. She had severe pain in the abdomen, sickness, and diarrhœa. The temperature was 104° F., pulse 140, respirations rapid, and there was general abdominal tenderness. Pneumonia or appendicitis was suspected. Twelve hours later the first operation was performed. There was considerable fluid in the abdominal cavity and the appendix was much inflamed. The fluid yielded a pure culture of pneumococcus. The temperature afterwards still remained high, though drainage was satisfactory. Pain was complained of in the right shoulder. A week later cough developed. The second operation took place on

Nov. 4th, following aspiration, and 14 ounces of pus were removed from the right pleural cavity; this again showed pneumococci. Following the suggestions of the symptoms, operations were considered necessary for left-sided empyema, containing four ounces of pus (Nov. 13th); for intestinal obstruction revealed at operation (Nov. 24th) as due to strands of peritoneum dragging upon the junction of the small intestine and the colon; for a third collection of pus in the right upper chest, and apparently having no connexion with the lower focus previously drained (Dec. 13th). This relieved the pain in the right shoulder. Finally, on Jan. 18th, the last operation, upon the right hip-joint, released more pus, and from that time onwards the child, wasted to a skeleton and throughout having pyrexia, made an uninterrupted recovery. It is remarked that vaccines proved of no avail. Notable also is the fact that no pyæmia ensued, in spite of the obviously generalised distribution of the infecting organisms.

THE SPREAD OF TYPHUS FEVER BY LICE.

READERS of that extraordinarily vivid book the "Mémoires du Sergent Bourgogne," giving the report of an eye-witness and victim of the disasters of Napoleon's Russian campaign in the year 1812, will remember the horror with which the author found himself suddenly infected with vermin a few days after the French retreat from Moscow had begun. The infection was picked up, he says, from some reed mats on which he went to sleep in the village of Dorogoboui; as soon as he felt the itching he got up, stripped, and threw his shirt and trousers on the fire. The vermin exploded in the flames like the fire of two ranks of infantry; but for the next two months the gallant sergeant was never free from vermin, and in consequence his Mémoires contain repeated longings for clean linen. General de Ségur, who wrote a well-known account of Napoleon's Russian campaign from the point of view of a staff officer, concerned himself with such things as the European political situation, Napoleon's plans and conversation, or the disagreements between the various members of his staff, but hardly touched upon such lowly matters as pediculosis among the French troops. Yet the subject was one of the utmost importance, had he known it; in its retreat from Moscow Napoleon's Grand Army was harassed by a severe epidemic of typhus fever carried by vermin, and the soldiers forming the wreck of the Grand Army spread death and destruction by typhus fever right and left wherever they passed through Germany on their way from Russia. As Dr. A. Rose points out in "Napoleon's Campaign in Russia" the position of affairs is clearly shown in the report of Dr. Krantz, a Prussian army physician attached to the Grand Army, published in 1817. The lice carried typhus fever with them, and soldiers showing no sign of the disease were capable of infecting the families of civilians in whose houses they were quartered. The rapidity with which the infection spread is indicated by facts such as the following. In the 1st East Prussian Regiment of Infantry there was not a single case of typhus fever until it had marched for 14 miles on a highway along which the French had passed, while after this there were 15 or 20 cases in every company of 150 men. Dr. Krantz had most interesting observations to record on the treatment of typhus fever. The open-air treatment, inevitable in the case of soldiers on the march, had a mortality of only 2 or 3 per cent., while the patients treated in hospitals died in large numbers, also infecting and killing the physicians and nurses who attended them. Soldiers presenting the headache, nausea, and vertigo that are the first symptoms of typhus fever, were dressed warmly and put into wagons and covered with straw, with other precautions to avoid frostbite. At night they were quartered in isolated houses to avoid the spread of infection. It was remarked that the open-air method of treatment abolished the stage of convalescence after the attack was over. Three days after the patients had been free from fever for 24 hours they were fit for half a day's march or more. Dr. Rose, in a recent issue of the *Medical Fortnightly*, St. Louis, lays great stress on the importance of killing the lice that seem even nowadays, to judge by what one hears from the front, to be inseparable from fields of battle, and he quotes on this point from a circular recently issued by the German Imperial Board of Health. It is obvious that powerful parasiticide drugs must be used to kill the lice, in cases where baking or boiling the infected clothes, or, as Virgil puts it, *Infectum eluitur scelus, aut exuritur igni* is a counsel of perfection and impracticable. The Board recommends for this purpose sabadilla vinegar (containing veratrine), kerosine, eucalyptus oil, and balsam of Peru. Weyland in the Franco-Prussian war of 1870 found benzine excellent for this object. The clothes were exposed to benzine vapour in a tightly closed box for two or three hours. A recent number of the *Deutsche Medizinische Presse* speaks of asafœtida and naphthaline, regretting that no satisfactory prophylactic and no curative remedies have yet been found. Dr. Rose thinks that benzine or gasoline will probably prove the most serviceable. The German State railways have an excellent plan for cleansing their railway carriages. The whole carriage is run into a large iron cylinder, which is hermetically sealed; then the air is exhausted from the cylinder and its contents are warmed up (far short of the boiling point of water) by steam pipes. The lice infecting the upholstery of the carriage can survive the exposure to a partial vacuum, but when the heat is turned on their body fluids are evaporated at the low pressure, and so they die the death of desiccation.

THE DEATH-RATES DUE TO DISEASE OF THE HEART, ARTERIES, AND KIDNEYS.

IN the United States of America the death-rates due to chronic heart disease, arterial disease, and renal disease all show considerable relative and absolute increments in the last few decades. Excluding valvular disease of the heart and acute nephritis, Dr. A. E. Shipley in the Bulletin of the Department of Health, New York, argues that all these conditions are promoted by (1) environmental circumstances demanding a persistent hyperactivity of the circulation; (2) the retention of toxic products of metabolism in the blood; and (3) senile change, so-called. Examining the death-rates for America in 1912 he finds that one-fifth of all deaths were due to diseases of the cardio-vascular type. In 1870 the death-rate from all causes was under 29 per 1000, in 1912 it was under 15 per 1000, but in 1912 the death-rates from these disorders in persons aged 45 or more had increased by from 100 to 300 per cent., as compared with the death-rates recorded at these ages in 1868. Dr. Shipley asserts that these disorders are largely preventable, and calls for special measures to

educate the public in the avoidance of the conditions known to promote the occurrence of these degenerations. Among the things to be avoided are undue mental strain and worry in business, abnormal social activity, over-eating, the indulgence in too much protein food, excessive alcoholic indulgence, lack of fresh air and exercise, chronic constipation and intestinal stasis, and the vascular degeneration so often associated with such diseases as syphilis, rheumatism, lead poisoning, and the like. Emphasis should be laid on the importance of drinking water as an aid to ridding the blood of toxic substances that raise the blood pressure. Adults should undergo medical examination from time to time, so that the beginnings of these degenerations may be detected and treatment for them instituted in their early stages. Dr. Shipley develops a comprehensive scheme for educating the public in these matters, to be managed by local health departments on much the same lines as tuberculosis campaigns or pure milk campaigns have been managed in the past.

LAVAGE IN CARBOLIC ACID POISONING.

In carbolic acid poisoning lavage with various solutions has been recommended, and two substances—alcohol and sodium sulphate—have been particularly recommended, apparently on rational grounds. In the Johns Hopkins Hospital Bulletin Dr. David I. Macht has published an important experimental investigation on the subject and shown that alcohol is not only useless but injurious. Its use is due to a fallacious deduction from the fact that it is beneficial in carbolic acid burns. Alcohol was introduced as an antidote for carbolic acid in 1899 by Dr. S. D. Powell, of New York, who used to demonstrate his view by washing his hands in pure carbolic acid and then in alcohol, and even by filling his mouth with the acid and quickly rinsing with 95 per cent. alcohol. Subsequently isolated cases were recorded as illustrations of the value of alcohol. With regard to the use of sodium sulphate, contradictory researches have been published. In the higher animals the first symptoms of carbolic acid poisoning are weakness and a peculiar muscular tremor. These are soon followed by clonic convulsions, collapse, coma, and death. There is very little pain, as the central nervous system is quickly paralysed. Dr. Macht introduced liquefied carbolic acid, both in concentrated solution and in various dilutions through a stomach tube into various animals and washed out the stomach at different periods after the appearance of symptoms with solutions or suspensions of various substances—egg albumin, alcohol, sodium sulphate, sodium sulphite, and syrup of lime. Albumin proved of little use and sodium sulphite too poisonous. Lime water and syrup of lime, recommended in the hope of forming an insoluble compound, were found unsatisfactory. In cats the success of lavage was found to depend on the amount of carbolic acid given, the time of lavage, and the solutions used. After small, though lethal, doses, washing out the stomach thoroughly with either plain water or a concentrated solution of sodium sulphate on the appearance of convulsions (three to five minutes after ingestion) saved the animals in most cases. Lavage with solutions of alcohol was followed by death more often than by recovery. After large doses of carbolic acid prompt lavage with alcohol was followed almost invariably by death, plain water also failed, but solution of sodium sulphate gave the best results—survival for a time or recovery. After later lavage with alcohol or plain water the animal invariably died, but after lavage with sodium sulphate it occasionally recovered. Dogs withstood carbolic acid better than cats, and could be saved by immediate lavage irrespective of the medium used. After larger doses immediate lavage with sodium sulphate or plain water sometimes saved the animal, while lavage with alcohol was almost always followed by death. In late lavage (about 15 minutes after ingestion) sodium sulphate gave the best results and plain water the next, while the use of alcohol was almost invariably followed by death. Dr. Macht agrees with Tauber that sodium sulphate does not act chemically, but by hindering absorption and possibly also by purgation. Magnesium sulphate can be used for the same reasons, but the possible depressing effect of the magnesium ions in case of absorption is a disadvantage. Further experiments showed that animals which had previously been poisoned with alcohol withstood carbolic acid better than others. Possibly this was due to the greater affinity of the alcohol for the nerve cells which prevented the carbolic acid from acting on them. On the other hand, alcohol given after ingestion of carbolic acid simply promotes absorption, as it is an excellent solvent of the latter. This is confirmed clinically, for of 10 cases mentioned by Falck in which carbolic acid was taken in various alcoholic drinks 9 were fatal, whereas in 17 in which the acid was simply taken by mistake 13 were fatal. The point is important, for the recommendation of alcohol as an antidote to carbolic acid is to be found even in text-books.

NYSTAGMUS AND LABYRINTHINE STIMULI.

FOR nearly two decades the problems connected with the physiology and pathology of the association of eye movements—nystagmus—and labyrinthine stimuli have attracted the attention of aurists, neurologists, and physiologists. Of later years the tracts along which these impulses pass from the ear to the eye, as well as a clearer and more definite localisation of the nerve centres which receive these impulses, have been the subjects of careful investigation. But at the same time much speculative matter has been put forward, some based on most ill-defined premisses. All good earnest scientific work is to be welcomed, the more so on account of the speculative character of much modern teaching. Dr. J. Gordon Wilson and Dr. F. H. Pike have recently given us a very important contribution on this matter, a series of laboratory experiments dealing with the afferent and efferent tracts of the stimuli and their effects. These are to be found in the records of the American Otological Society, this particular paper being delayed by the fact that the illustrations were being reproduced on the continent of Europe. The value of the experiments appears to be great, showing amongst other things that "lesions of the cerebral hemisphere on the side of the slow deviation of the eyes abolish or reduce the quick component."

THE Seventh International Congress for Obstetrics and Gynæcology, which was to have taken place this autumn in New York, will not be held on account of the political situation existing in Europe. The American committee has decided to postpone the date of meeting of the Congress until September, 1917.

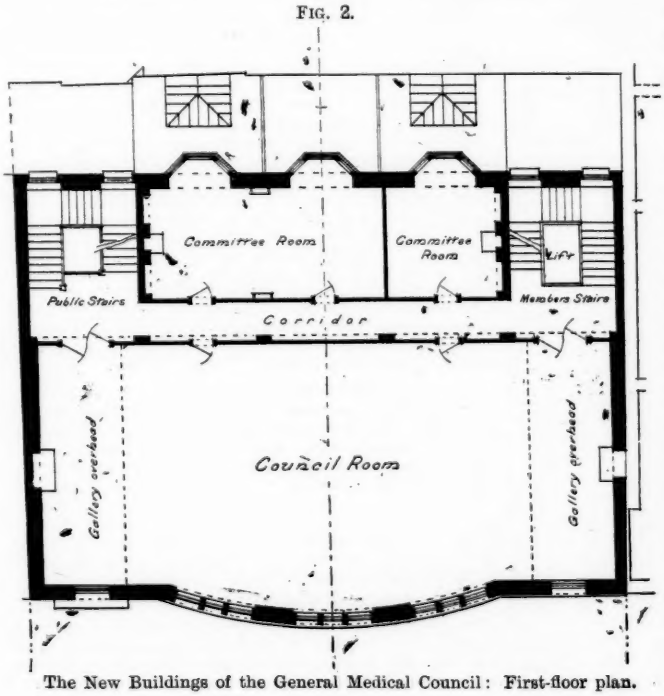
THE NEW BUILDINGS OF THE GENERAL MEDICAL COUNCIL.

THE first meetings of the General Medical Council took place at the Royal College of Physicians of London, and subsequently a registration office was opened in Soho-square. In 1874 the Council obtained from H.M. Office of Works the premises at 299, Oxford-street, which were formerly occupied by the Royal College of Chemistry, and in 1895 the Council purchased the freehold of the site and of the ground behind it, which runs through to 16, Hanover-square. For some time it has been considered that it would be advantageous to dispose of the Oxford-street site if a suitable one could be obtained elsewhere. Not only might the Council's income be thereby increased, but it would be possible to put up a new building more suitable to the Council's requirements. Although a council chamber had been built on and a storey added to the old building, the premises were by no means convenient. Not only was the office accommodation inadequate, owing to the large extension of the membership and work of the Council, but during the session it was quite impossible to provide proper rooms for the legal advisers, the medical profession, the witnesses, and such members of the general public who may be present during the proceedings.

FIG. 1.

The New Buildings of the General Medical Council: Front elevation.

FIG. 2.



The New Buildings of the General Medical Council: First-floor plan.

The Oxford-street portion of the site has now been disposed of, and a new site has been taken on the Howard de Walden estate in Hallam-street, which lies between Portland-place and Great Portland-street, parallel to these two thoroughfares. The street is one which has no direct openings at either end, and is therefore not much used for through traffic. The whole of it is now being rebuilt, and in about three years' time, with the exception of the Council's building and the Jewish Synagogue next door, it will consist of residential flats. The new building has been designed by Mr. Eustace Frere, A.R.I.B.A., of 1, Lincoln's Inn-fields, and the contractors are Messrs. Chinchen and Co.

The front elevation is shown by Fig. 1. The front is of Portland stone, with a central bay extending.

nearly to the full height of the building. On entering the visitor will find himself in a large hall, round which are the registration office, rooms for the President and Registrar, and separate cloak rooms and lavatories for the members of the Council and the public. At each end of the building is a staircase, one of these being for the public and the other for members. A lift is also provided for members, who thus have access to all parts of the building independently of the passages intended for the public, except in the entrance hall itself. The Council chamber extends the full width of the building on the first floor, and in rear of it are two committee rooms; one of these can be subdivided by a movable partition and retiring rooms for complainants, defendants, and the legal profession will thus be provided. The Council chamber occupies in height the space of two floors; there will be a gallery at either side of it and the room will be panelled in oak. On a mezzanine floor at the back of the upper part of the Council room are two large committee rooms on a level with the galleries; these will provide accommodation for the press when the Council sits *in camerâ*. Above this again is a members' luncheon room and a smoking room, together with another committee room, and at the top are quarters for the caretaker. The war has caused a great rise in the cost of building materials and labour, and it has therefore been found necessary to postpone the installation of some of the decorative features in the original design, such as the panelling of the Council chamber, but it is hoped that these may be added in a few years' time.

The new building will probably be occupied before the end of this year, but the next two sessions are likely to take place in the Oxford-street premises.

REPORT OF THE ADVISORY COMMITTEE FOR THE TROPICAL DISEASES RESEARCH FUND FOR 1914.[1]

As was pointed out last year when commenting upon the annual report for 1913, the advisory committee of the Tropical Diseases Research Fund, which was constituted by the Secretary of State for the Colonies in 1904, continues to be greatly hampered in its good work by the insufficiency of its financial resources. The income for 1914 amounted to £3745, of which the Imperial Government contributed £1000 and the Government of India £500, the remainder being made up by contributions from the Dominion and Colonial Governments. The expenditure was £4250, so that there was an excess of £505 on the wrong side. This deficiency had again to be made up by drawing upon the accumulated balance of the fund which is now reduced to £750; so that this method of meeting the annual deficiency must soon come to an end.

The Expenditure of the Fund.

The expenditure comprised a grant of £1450 to the London School of Tropical Medicine; of this amount, £1200 were expended in payment of salaries and the maintenance of the laboratories of the teachers and investigators of helminthology, protozoology, and entomology, £250 being also given as a contribution towards the investigation of schistosomiasis carried out by Dr. R. T. Leiper in the Far East. The Liverpool School of Tropical Medicine received £1200, of which £500 were spent on research work on trypanosomiasis, £250 on research work on parasitology and helminthology, £250 on entomological research, and £200 on malaria investigation. A sum of £850 was given to the University of London, £750 of which was expended in paying the salary of the professor of protozoology, and on the application of the University £100 were granted towards the salary of the professor's scientific assistant, Dr. H. M. Woodcock. To the University of Cambridge £750 were paid, £100 of which were given in respect of the research studentship in medical entomology, £100 towards the salary of an assistant to the Quick professor, £100 towards the payment of a helminthologist, £50 towards the salary of a demonstrator in medical entomology, and £100 for the general expenses of the Quick laboratory. A special grant of £300 was made towards the expenses of sending Dr. E. Hindle to Uganda and Nyasaland to carry out research work there, but owing to the war the expedition was postponed, and the £300 will remain earmarked for this work.

Statistical Returns.

Appended to the report are the statistical returns received from certain colonies and protectorates with regard to mosquito-borne diseases, supplied in accordance with the circular of the Secretary of State dated Dec. 20th, 1910. Reports are also appended of the work done by the London and Liverpool Schools of Tropical Medicine and reports of the professor of protozoology in the University of London and his assistant; also a report by Professor G. H. F. Nuttall on the work done in the Quick Laboratories. Certain reports on work done at various colonial laboratories are also appended, and one by Dr. Louis W. Sambon on Dermatobia hominis in the West Indies, where he has been recently conducting inquiries. By arrangement a résumé of the Annual Report of the Gordon College Research Laboratories at Khartoum is likewise included.

Reports on Antimalarial Measures in the Crown Colonies and Protectorates, &c.

These reports are preceded by a note furnished by Professor Sir Ronald Ross on the Prevention of Mosquito-borne Diseases in the Colonies, along with a suggested form of return. The colonies, the reports of which are printed in the appendix, include the Windward Islands (St. Vincent), Hong-Kong, the British Solomon Islands Protectorate, South Africa, the Leeward Islands (Antigua, St. Kitts-Nevis, Dominica, and Montserrat), Nyasaland, the Straits Settlements, Zanzibar, Mauritius, the Northern Territory of Australia, and Trinidad. The committee observe with satisfaction that these reports have been prepared with great care, and they call special attention to the valuable reports supplied by Hong-Kong, Zanzibar, and the Straits Settlements.

Report of the Professor of Protozoology, London University.

The work of Professor E. A. Minchin included further researches, with the assistance of Dr. J. D. Thomson, on Trypanosoma lewisi and its immediate host the rat-flea, the complete memoir of which, embodying all the results and fully illustrated, has been sent to the *Quarterly Journal of Microscopical Science* for publication. A résumé of the report, however, is given by Professor Minchin, and this is divided into three parts. Part I. contains an introduction and a description of the technique employed, and the anatomy and histology of the flea. Part II. contains the results of the observations made, and Part III. the results of the experiments carried out. The development of the trypanosome in the flea is described, as also the experimental results with regard to the transmission by the flea and other kindred problems.

Report by Dr. H. M. Woodcock.

Dr. Woodcock, assistant to Professor Minchin, reports on the work done by him during the year ended June 30th, 1914, under the headings of (1) Research and (2) Assistance to the Professor and in the Department. Under the first he deals with flagellates occurring in the common British mosquito, Culex pipiens, and as to the second he refers to demonstrations which he gave in connexion with Professor Minchin's course of lectures on the Protozoan Parasites of Man. Dr. Woodcock also rendered considerable assistance to the workers in the laboratory.

Report on the Work of the Quick Laboratory, Cambridge.

Professor Nuttall gives an account of various papers to the number of 10 published by workers in this laboratory during the year, and incidentally mentions that the work of his department has been greatly disturbed by the war. A

[1] Report of the Advisory Committee for the Tropical Diseases Research Fund for the Year 1914. Presented to both Houses of Parliament by command of His Majesty. London. 1915. Printed under the authority of H.M. Stationery Office. Pp. 248. Price 2s. 3d.

number of his students and assistants have obtained commissions and are serving in the army. One has been killed in the fighting which took place in Nyasaland. Miss Porter, D.Sc., has resigned her post of helminthologist upon her appointment to a Beit Memorial Scholarship.

Report of the London School of Tropical Medicine.

This includes reports by the entomologist, the helminthologist, and the protozoologist, for the two half-years ended Oct. 31st, 1914, furnished respectively by Lieutenant-Colonel A. Alcock, I.M.S. (retired), Dr. R. T. Leiper, and Dr. C. M. Wenyon. Dr. Leiper's report is addressed from China, whither he had gone as Wandsworth scholar, accompanied by Surgeon E. L. Atkinson, R.N., for the purpose of studying the mode of spread of trematode infections of man, especially bilharziasis, a special report on which is given and further particulars promised later. Dr. Wenyon has resigned his post, and has been succeeded by Dr. J. Gordon Thomson, formerly of the Liverpool School of Tropical Medicine. The operations of the London school have been much disturbed by the war and by the departure of some of the teachers who have joined the forces in the field.

Report of the Liverpool School of Tropical Medicine.

In this are contained reports by Professor J. W. W. Stephens, Professor R. Newstead, and Professor Warrington Yorke, and by Dr. H. B. Fantham and Dr. B. Blacklock, of the work done in their various departments. A summary of the scientific papers contributed by members of the staff of the school is appended. At the Runcorn Laboratories Dr. Blacklock has been engaged for some time upon investigations in connexion with Trypanosoma cruzi, the South American trypanosome of man. As this parasite is transmitted by a reduvid bug experiments were made to ascertain if the common bed-bug might also act as a carrier of this disease. Dr. Fantham among other researches continued his investigations on bronchial spirochætosis.

Report from the Wellcome Research Laboratories, Khartoum.

This report deals with the work carried out by the Bacteriological Section, and that by the Entomological Section concerned with subjects of interest in tropical medicine, after the resignation of Dr. Andrew Balfour, C.M.G., and under the directorship of Dr. Albert J. Chalmers.

Observations on the Life History of Dermatobia Hominis.

Dr. Louis W. Sambon, in the course of a recent visit to the West Indies, found opportunities for examining several cases of cutaneous myiasis in man and animals. He also collected some interesting information regarding the bionomics of Dermatobia hominis, a warble-fly, the larva of which is a common parasite of man in certain regions. His observations were made in Colombia, British Guiana, and Trinidad, and his report, which is illustrated, makes very interesting reading. He appends to it a long list of references on the subject.

Reports on Work Carried out in Colonial Laboratories.

The report from the Institute for Medical Research, Kuala Lumpar, Federated Malay States, among other things deals with beri-beri, leprosy, and blackwater fever from the scientific standpoint, and as an "annexure" Dr. H. Fraser and Dr. W. Fletcher furnish a contribution on "The Bacillus Lepræ: Has it been Cultivated?"[2] The Hong-Kong Bacteriological Institute supplies a report on investigation of the mosquitoes in that colony, in which the stegomyia fasciata is definitely stated to be present, especially on the Kowloon side of the harbour. Dr. Aldo Castellani gives a report on the very varied and valuable work carried out by him at the Clinic for Tropical Diseases and at the Bacteriological Institute, Ceylon. Lastly, Dr. H. Harold Scott presents an interesting report for the year ending Sept. 30th, 1914, on the work done at the Pathological Laboratory, Public Hospital, Kingston, Jamaica.

[2] THE LANCET, Sept. 27th, 1913, p. 918.

DONATIONS AND BEQUESTS.—By the will of the late Sir James Rankin, first baronet, of Bryngwyn, Hereford, the testator bequeathed £1000 to the Herefordshire General Hospital.—The Royal Westminster Ophthalmic Hospital has received from the trustees of the Zunz Bequest a further donation of £300.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned have been granted temporary commissions as Surgeons in His Majesty's Fleet: Stanley Ninian Wright (dated June 3rd), Harold Oliver Martin (dated June 4th), Charles Milwyn Burrell (dated June 5th), Gerald William Mooney, and John Arnold Fairer.

The following appointments have been notified:—Fleet-Surgeon: H. J. Hadden to the *President*. Temporary Surgeons: M. Fawkes and H. H. Gellert to the *President*, J. T. E. Evans and G. W. Mooney to the *Pembroke*, and J. A. Fairer to the *Victory*, the two last-named officers for Chatham and Haslar Hospitals respectively; J. Lambert to hospital ship *Rewa*, and J. S. Kennedy to the *Monarch*.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Ebenezer Snell has been promoted to the rank of Honorary Staff Surgeon. Surgeon: C. S. McK. Murison to the *Vivid*, additional, for R.N. Barracks at Devonport.

ROYAL ARMY MEDICAL CORPS.

Captain Douglas S. B. Thomson is placed on the Half-pay List on completion of 10 years' service with the Egyptian Army (dated April 20th).

Lieutenant John F. Hutton relinquishes his temporary commission on account of ill-health (dated March 26th).

Lieutenant John P. Brown relinquishes his temporary commission (dated May 10th).

The undermentioned are granted temporary honorary rank whilst serving with the British Red Cross Society in France:—As Lieutenant-Colonel: Leonard Nicholas Robinson (dated June 6th). As Major: Charles George Jarvis (dated June 6th). Sir David Hardie to be temporary Major (dated April 4th). Captain John Charles Davies, 4th Battalion, The Royal Welsh Fusiliers, Territorial Force, to be temporary Major whilst employed with the Field Ambulances of the 43rd Division (dated May 12th).

Alfred Wills to be temporary Lieutenant whilst serving with the British Red Cross Hospital, Netley (dated June 7th).

The undermentioned to be temporary Majors: Major Robert Thomas Hughes, Welsh Divisional Train, The Army Service Corps (dated May 17th). Major Nathaniel Samuel Manning, 6th Battalion, The Devonshire Regiment (dated May 18th). Major Edward Burdett Pooley, 4th Battalion, The King's Own (Royal Lancaster Regiment) (dated May 19th). Arthur Neve (dated April 8th) and Philip Turner (dated May 18th). Richard Gundry Rows is granted temporarily the honorary rank of Major whilst doing duty at Moss Side Military Hospital (dated May 28th). Elwin Harral Thomas Nash to be temporary Major whilst employed at the Lord Derby War Hospital (dated March 24th).

The undermentioned to be temporary Captains: Henry Mainwaring Holt, Home Hospitals Reserve (dated April 27th). George Blacker (dated May 1st). Captain Sidney Herbert, from 9th (Service) Battalion, The Bedfordshire Regiment (dated May 14th). Captain Christopher Victor Bulstrode, Shropshire Royal Horse Artillery (dated May 18th) Dated May 20th: Temporary Lieutenant Godfrey M. Huggins and Temporary Lieutenant Lewis E. Barnett.

The undermentioned to be temporary Lieutenants:—Dated April 4th: Cuthbert Arnold Verge. Dated April 6th: Roger Orme Bridgman, Russell William Richards, and Charles Frederick Strange. Dated April 15th: Kerr Simpson and Thomas Dymock Kennedy. Dated April 22nd: Denis Fitzgerald O'Kelly. Dated April 25th: Horace Carlos Barr. Dated April 27th: Robert James Ledlie, Colin More Geddie, Frank Jubb, John Harry Hebb, John Bowes, Charles Coventry, Reginald Tom Cox, John Howe, William Ritchie Main, Alfred Hardman Mountcastle, William Francis Gordon Scott, and Arthur Sydney Webley. Dated April 28th: Oliver Heath, John McKenzie, Hassell Dyer Field, Walter Edward Cooper, Robert Hanham Cox, Charles Crerar, Stanley Denovan Adam, William Wallace, James Ash, Richard John Batty, John Harry Saunders, and Thomas Harold Phillips. Dated April 30th: John Joseph McConnell and William Sinclair Stevenson. Dated May 1st: William John Dunlop, Alexander Smith Allan, Michael Alfred McKeever, Sidney Ernest Holder, John Hamilton Hart, Norman Devereaux, John Harmer Drew, Reginald Wynyard Davies, George Edward Kinnersly, John Gawler Murray, John MacDonald, William George Ridgeway Macauley, John Purcell, George Mallock Bluett, John Lancelot Atkinson, Reginald Thompson Raine, Cecil Price Jones, Henry Harvey, William Albert Rogerson, Francis Bernard Chavasse, Michael John McCarthey, David Lindsay Hutton, Worsley John Harris, Stanley Allman Hall, Edgar Duesbury Wellburn, Richard Hugh Williams, James Cameron Turnbull, David Moodie, Joshua Bower Dalton, Cyril Mary Brophy, James Rae, Charles Edward Fenn, Leslie Fraser Eiloart Jeffcoat, Ernest George Sworder, Andrew Duffield Blakeley, Thomas Maitland Crawford, Augustus Lower Paliologus, Robert Hughes, Richard

Dowden, Henry Porter D'Arcy Benson, Martin Ashley, William Kenneth Bigger, George Barthorpe Simpson, Guy Verney Fletcher, William Stewart Stolker, William Robert Watt, Alexander Duncan, Roland Danvers Brinton, Henry Hugh Rose Clarke, Arthur Matthey, George Douglas Kerr, Edward Patrick Carey, George Stephen Ware, James Francis Wolfe, Samuel Wyborn, Roy Mackenzie Stewart, Henry Spinks, Thomas Forbes Brown Reid, Frederick William Rowland, Clayton Campbell Harris, Thomas Henry Harker, Montagu David Eder, Robert Park, Eliot Watson Blake, Bernard Pickering, Harold Heafford Prendfoot, James Thomas Macnamara, Archibald George Kirwood Ledger, Alan Randle, Robert Alexander MacKenzie Macleod, Benjamin Henry Shaw, Howel Gabriel Gwyn Jeffreys. Dated May 2nd: Percy Haycroft Berry. Dated May 10th: Lewis Edward Barnett. Dated May 15th: John Macqueen, from Royal Field Artillery.

The following officers have been appointed to command Station Hospitals in India:—Lieutenant-Colonel C. F. Wanhill, Poona; Lieutenant-Colonel H. G. F. Stallard, Colaba; Lieutenant-Colonel W. B. Winkfield, Murree; Lieutenant-Colonel F. Ashe, Agra; and Major L. L. G. Thorpe, Ranikhet. Lieutenant-Colonel S. F. Rennie (retired) has been re-employed and ordered to assume command of the Station Hospital at Chakrata. The following transfers have been ordered:—Lieutenant-Colonel C. F. Wanhill from the 5th Division to the 6th Divisional Area; Lieutenant-Colonel W. B. Winkfield from the Burma to the 2nd Division; Lieutenant-Colonel H. G. F. Stallard from the 6th Division to the 6th Divisional Area; Lieutenant-Colonel F. Ashe from the 9th Division to the 7th Divisional Area; Major L. L. G. Thorpe from the 9th Division to the 7th Divisional Area; and Captain L. Murphy from the 9th to the 4th Division.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel to be Colonel: Charles Mactaggart, C.I.E. (dated March 29th).

Captains to be Majors: Dated Feb. 28th: Robert Kelsall, Charles Hildred Brodribb, John McCallum Anderson Macmillan, Clifford Allchin Gill, Richard Francis Steel, Arthur Charles Ingram, Ernest William Charles Bradfield, and John Brown Dalzell Hunter.

Lieutenants to be Captains:—Dated Oct. 22nd, 1914: Harry Slater Cormack, Edward Slade Goss, and George Blenkhorn Harland. Dated Jan. 27th: Ronald Herbert Candy, Philip John Veale, Jamasji Cursetji Bharucha, Henry Hingston, Heerajee Jehangir Manockjee Cursetjee, Frederick Jasper Anderson, Peter Fleming Gow, John Simson Stuart Martin, Robert Victor Morrison, James Walker Jones, J. Chandra Dey, and James Hall Hislop.

The promotion to their present rank of Majors Henry Ross and Leonard Hirsch is antedated from July, 1914, to January, 1914, and of Majors John O'Leary, Cuthbert Lindsay Dunn, and Raghber Dayal Saigol is antedated from September, 1914, to March, 1914.

The King has approved the retirement of Surgeon-General George Francis Angelo Harris, C.S.I., K.H.S. (dated April 1st).

The King has approved the promotion of Temporary Lieutenant James Robert Hall Walker to Temporary Captain (dated Dec. 22nd, 1914).

SPECIAL RESERVE OF OFFICERS.

Supplementary to Regular Units or Corps: Royal Army Medical Corps.—Cadet Sergeant Eric Jamieson, from the Edinburgh University Contingent, Officers Training Corps, to be Lieutenant (on probation).

TERRITORIAL FORCE.

Army Medical Services.

Lieutenant-Colonel Francis E. Fremantle, from Sanitary Service, to be Deputy Assistant Director of Medical Services, East Anglian Division, vice Major E. C. Freeman, who vacates the appointment.

Royal Army Medical Corps.

The undermentioned to be Captains, whose services will be available on mobilisation: Alfred Herbert Howsfall, D.S.O. (late Major, Australian Medical Corps), Matthew John Stewart, and Herbert James Macvean.

Harold Dobson Pickles (late Cadet, Leeds University Contingent, Senior Division, Officers Training Corps) to be Lieutenant.

1st Southern General Hospital: Frederick William Ellis to be Lieutenant-Colonel (temporary), whose services will be available on mobilisation.

1st London (City of London) Sanitary Company: Vincent Philip Norman (Lieutenant, Indian Medical Service) to be Lieutenant.

1st South-Western Mounted Brigade Field Ambulance: Lieutenant Ivan C. Keir to be Captain.

3rd Home Counties Field Ambulance: William Walker Maxwell to be Lieutenant.

3rd East Lancashire Field Ambulance: Lieutenant Kingsmill W. Jones to be Captain and to remain seconded.

5th London Field Ambulance: Lieutenant-Colonel Edward Lloyd-Williams, from the Territorial Force Reserve, to be Lieutenant-Colonel (temporary).

5th Northern General Hospital: Alfred Ernest Payne to be Captain, whose services will be available on mobilisation.

North Midland Mounted Brigade Field Ambulance: Robert Hargreaves (late Cadet Sergeant, Cambridge University Contingent, Senior Division, Officers Training Corps) to be Lieutenant.

Notts and Derby Mounted Brigade Field Ambulance: Captain Oswald Kentish Wright to be temporary Major.

South-Eastern Mounted Brigade Field Ambulance: William Tresawna to be Lieutenant.

Yorkshire Mounted Brigade Field Ambulance: Captain Charles H. Bullen, from Attached to Units other than Medical Units, to be Captain.

3rd Highland Field Ambulance: Alexander Reid Moodie (late Second Lieutenant, St. Andrews University Contingent, Senior Division, Officers Training Corps) and Alexander Brown Jamieson to be Lieutenants.

1st Lowland Field Ambulance: Alexander Graham Buchanan to be Lieutenant.

1st Eastern General Hospital: Henry Samuel Crichton Starkey to be Captain, whose services will be available on mobilisation.

4th London General Hospital: Edward Bellis Clayton to be Captain, whose services will be available on mobilisation.

2nd Northern General Hospital: John Kay Jamieson to be Major (temporary) on the permanent personnel.

1st East Lancashire Field Ambulance: Lieutenant John Bruce to be temporarry Captain.

2nd Welsh Field Ambulance: Lieutenant Charles W. C. Myles to be Captain.

1st Western General Hospital: Major James M. Beattie, from 3rd Northern General Hospital, to be Major. Edgar Stevenson to be Captain, whose services will be available on mobilisation.

2nd Western General Hospital: Judson Sykes Bury (late Major in this Unit) to be Major.

3rd Western General Hospital: Gilbert Innes Strachan to be Lieutenant.

Attached to Units other than Medical Units.—Surgeon-Major Arthur C. Oldham, from 2nd South Midland Brigade, Royal Field Artillery, to be Major. Captain Arthur C. Bird, from the Territorial Force Reserve, to be Captain. Captain Haldinstein D. Davis is restored to the establishment. Lieutenant Cecil W. Rowntree to be Captain, and to remain seconded. George James Elliot Trotter to be Lieutenant.

DEATHS IN THE SERVICES.

Deputy Surgeon-General Henry Joseph Rose, formerly in the 2nd (Queen's) and West Yorkshire Regiment, at a nursing home in London on June 2nd, aged 82. He joined the Army Medical Service in 1855 and saw service in the Crimea (medal with clasp and Turkish medal). He also took part in the China War of 1860 (medal with two clasps) and in the Afghan War of 1878–80 (medal). He retired in 1881.

Surgeon-General George William Robertson Hay, I.M.S., formerly principal medical officer of the Madras Command, on May 27th, at a nursing home in Edinburgh, aged 70. He retired from active service a few years ago.

Deputy Surgeon-General Christopher Joynt, I.M.S. (retd.), suddenly on June 4th, at the advanced age of 87. Born in Ballina, Co. Mayo, and educated in Queen's College, Galway, within a few years of its opening, he entered the Indian Medical Service and went to India shortly after the Mutiny. He served in the Persian Expeditionary Force in 1857, with the Okamandel and Kattywar Field Forces, 1859–60, and in the Abyssinian Campaign. He was for some time professor of midwifery in Bombay and was principal medical officer of the Quetta District. Since his retirement he has lived in Dublin, devoting himself to philanthropic and religious work. He was greatly interested in the study of theology. He was until recently a constant attendant at the meetings of the Royal College of Physicians of Ireland, of which he was a Fellow. Of late years his sight was failing, but he had unusually good health for a man of his age. Two of his sons are in the medical profession, one practising in Fiji and one in South Africa.

INDIAN MEDICAL SERVICE PROMOTIONS.

Consequent on the suspension during the war of examinations for promotion, lieutenants with less than three years' service will be promoted to the rank of captain on completion of that term of service, irrespective of whether they have passed the prescribed examinations or not, provided they are qualified in all other respects. Lieutenants who have already completed three years' service and who have not passed, or have failed to pass, will be promoted as from Oct. 22nd, 1914, the earliest date on which they could have presented themselves for examination in the ordinary course, provided they are certified to be fit for promotion in all other respects. Lieutenants who have not been able for approved reasons to present themselves for examination will be dealt with under the ordinary rules. Promotions made under

these orders, which have been issued by the Government of India, will be regarded as provisional, subject to the officers passing the required examination at the first opportunity on the restoration of normal conditions.

THE ROYAL NAVY LIST.

A second edition of the Royal Navy List, containing a special war supplement bringing the records of men and ships up to date (May, 1915), has just been issued. The alphabetical arrangement of this book, as regards the services of the personnel, greatly facilitates ready reference. A current history of the Royal Navy, the events of the war, and a summary of ships' services and commissions are other useful features of this publication. Messrs. Witherby and Co., 326, High Holborn, London, are the publishers, and the price is 7*s.* 6*d.*

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 96 English and Welsh towns with populations exceeding 50,000 persons at the last Census, 7337 births and 4756 deaths were registered during the week ended Saturday, May 29th. The annual rate of mortality in these towns, which had been 15·5, 14·2, and 15·4 per 1000 in the three preceding weeks, declined in the week under notice to 13·7 per 1000 of the average population estimated at 18,136,180 persons at the middle of last year. During the first eight weeks of the current quarter the mean annual death-rate in these towns averaged 16·6, against a corresponding rate of 17·1 per 1000 in London. The annual death-rate in the week under review ranged from 4·3 in Lincoln, 5·9 in Bath, 6·0 in Wallasey, 6·4 in Hornsey, and 6·5 in Acton, to 20·9 in Huddersfield, 21·3 in Halifax, 22·1 in Barrow-in-Furness, 22·9 in South Shields, and 24·7 in Middlesbrough.

The 4756 deaths from all causes were 584 fewer than the number in the previous week, and included 439 which were referred to the principal epidemic diseases, against 484 and 603 in the two preceding weeks. Of these 439 deaths, 221 resulted from measles, 90 from whooping-cough, 64 from infantile diarrhœal diseases, 31 from diphtheria, 21 from scarlet fever, 11 from enteric fever, and 1 from small-pox. The mean annual death-rate from these diseases was equal to 1·3, or 0·4 per 1000 less than in the previous week. The deaths attributed to measles, which had been 276, 238, and 309 in the three preceding weeks, fell to 221, and caused the highest annual death-rates of 1·8 in Coventry, 1·9 in Dewsbury, 2·0 in Sunderland, 2·3 in Northampton, 3·0 in West Bromwich, 3·3 in South Shields, 3·4 in Sheffield, 6·1 in Walsall, and 6·6 in Middlesbrough. The deaths referred to whooping-cough, which had been 121, 105, and 137 in the three preceding weeks, declined to 90 in the week under notice, and included 18 in London, 6 each in Liverpool and Wigan, 5 in Birmingham, and 3 in South Shields. The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had been 67, 57, and 70 in the three preceding weeks, fell to 64, of which 13 were registered in London, 5 in Liverpool, and 3 in Barrow-in-Furness. The deaths attributed to diphtheria, which had been 51, 48, and 51 in the three preceding weeks, declined to 31, and included 6 in London and 3 in Birmingham. The deaths referred to scarlet fever, which had declined from 34 to 20 in the four preceding weeks, were 21 in the week under review, of which 4 occurred in London and 2 each in Northampton and Wigan. The fatal cases of enteric fever, which had been 12, 11, and 15 in the three preceding weeks, fell to 11, and included 3 in Manchester and 2 each in Stoke-on-Trent and Liverpool. The death from small-pox was registered in Bristol.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2384, 2332, and 2286 at the end of the three preceding weeks, further fell to 2252 on May 29th; 257 new cases were admitted during the week, against 307, 270, and 320 in the three preceding weeks. These hospitals also contained on the aforementioned date 1089 cases of diphtheria, 126 of measles, 51 of enteric fever, 11 of whooping-cough, and 1 of small-pox. The 1139 deaths from all causes in London were 149 fewer than in the previous week, and corresponded to an annual death-rate of 13·1 per 1000. The deaths referred to diseases of the respiratory system, which had steadily declined from 469 to 212 in the six preceding weeks, further fell to 182 in the week under notice, but were 17 in excess of the number registered in the corresponding week of last year.

Of the 4756 deaths from all causes in the 96 towns 252 resulted from different forms of violence and 353 were the subject of coroners' inquests, while 1412 occurred in public institutions. The causes of 40, or 0·8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Leeds, Bristol, West Ham, Bradford, Hull, and in 72 other smaller towns. Of the 40 uncertified causes of death, 10 were registered in Birmingham, 5 in Liverpool, 3 each in Stoke-on-Trent and Darlington, and 2 each in London, Gillingham, Bootle, and Sheffield.

In the 96 English and Welsh towns 9202 births and 4847 deaths were registered during the week ended Saturday, June 5th. The annual rate of mortality in these towns, which had been 14·2, 15·4, and 13·7 per 1000 in the three preceding weeks, rose in the week under notice to 13·9 per 1000. During the first nine weeks of the current quarter the mean annual death-rate in these towns averaged 16·3, against a corresponding rate of 16·7 per 1000 in the metropolis. The annual death-rate last week ranged from 4·6 in Reading, 6·2 in Walthamstow, 6·4 in Hornsey, 6·6 in Ealing, and 6·8 in Enfield, to 20·8 in Rotherham, 23·7 in Carlisle, 23·9 in Middlesbrough, 27·6 in Sunderland, and 28·2 in Gillingham.

The 4847 deaths from all causes were 91 in excess of the number in the previous week, and included 489 which were referred to the principal epidemic diseases, against 603 and 439 in the two preceding weeks. Of these 489 deaths, 239 resulted from measles, 90 from whooping-cough, 75 from infantile diarrhœal diseases, 50 from diphtheria, 22 from scarlet fever, and 13 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·4, against 1·3 per 1000 in the previous week. The deaths attributed to measles, which had been 238, 309, and 221 in the three preceding weeks, rose to 239 last week, and caused the highest annual death-rates of 2·1 in Derby, 2·2 in Walsall, 2·6 in Stockton-on-Tees, 3·2 in Barrow-in-Furness, 4·1 in Sunderland, 4·2 in Sheffield, 4·5 in Middlesbrough, and 5·3 in West Bromwich. The deaths referred to whooping-cough, which had been 105, 137, and 90 in the three preceding weeks, were again 90 last week, and included 23 in London, 9 in Liverpool, 4 in Birmingham, and 3 each in East Ham, Manchester, and South Shields. The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had been 57, 70, and 64 in the three preceding weeks, rose to 75 last week, of which 15 occurred in London, 7 in Manchester, 5 in Sheffield, and 4 each in Birmingham and Liverpool. The deaths attributed to diphtheria, which had been 48, 51, and 31 in the three preceding weeks, rose to 50 last week, and included 13 in London, 5 in Northampton, and 3 in Norwich. The deaths referred to scarlet fever, which had been 25, 20, and 21 in the three preceding weeks, were 22 last week, of which 7 were registered in London, and 2 each in Warrington and Manchester. The fatal cases of enteric fever, which had been 11, 15, and 11 in the three preceding weeks, rose to 13 last week, and included 2 each in Bristol and Manchester.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had declined from 2384 to 2252 in the four preceding weeks, had increased to 2267 on Saturday last; 327 new cases were admitted during the week, against 270, 320, and 257 in the three preceding weeks. These hospitals also contained on Saturday last 1091 cases of diphtheria, 110 of measles, 50 of enteric fever, 11 of whooping-cough, and 1 of small-pox. The 1151 deaths from all causes in London were 12 in excess of the number in the previous week, and corresponded to an annual death-rate of 13·3 per 1000. The deaths referred to diseases of the respiratory system, which had steadily declined from 469 to 182 in the seven preceding weeks, were 181 last week, and were 2 in excess of the number recorded in the corresponding week of last year.

Of the 4847 deaths from all causes in the 96 towns, 227 resulted from different forms of violence, and 344 were the subject of coroners' inquests, while 1468 occurred in public institutions. The causes of 45, or 0·9 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Manchester, Leeds, Bristol, West Ham, Bradford, Hull, and in 71 other smaller towns. Of the 45 uncertified causes, 8 were registered in Liverpool, 7 in Gillingham, 5 in Birmingham, 4 in Sunderland, 3 each in Warrington and Gateshead, and 2 each in Preston and Barrow-in-Furness.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns, with an aggregate population estimated at 2,345,500 persons at the middle of this year, 1075 births and 818 deaths were registered during the week ended Saturday, May 29th. The annual rate of mortality in these towns, which had declined from 20·2 to 16·1 per 1000 in the four preceding weeks, rose to 18·2 per 1000 in the week under notice. During the first eight weeks of the current quarter the mean annual death-rate in these towns averaged 18·8, against a corresponding rate of 16·6 per 1000 in the large English towns.

Among the several towns the death-rate in the week under review ranged from 10·1 in Paisley, 10·2 in Kirkcaldy, and 11·3 in Motherwell, to 20·7 in Leith, 22·1 in Perth, and 25·7 in Aberdeen.

The 818 deaths from all causes were 94 in excess of the number in the previous week, and included 145 which were referred to the principal epidemic diseases, against numbers declining from 150 to 90 in the four preceding weeks. Of these 145 deaths, 72 resulted from measles, 43 from whooping-cough, 15 from infantile diarrhœal diseases, 10 from diphtheria, and 5 from scarlet fever, but not one from enteric fever or from small-pox. The mean annual death-rate from these diseases was equal to 3·2, against a corresponding rate of 1·3 per 1000 in the large English towns. The deaths attributed to measles, which had been 47, 49, and 36 in the three preceding weeks, rose to 72, and included 53 in Glasgow, 13 in Aberdeen, and 4 in Falkirk. The deaths referred to whooping-cough, which had declined from 82 to 40 in the four preceding weeks, rose to 43, and comprised 25 in Glasgow, 5 each in Edinburgh and Aberdeen, 4 in Dundee, 3 in Hamilton, and 1 in Leith. The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had been 15, 9, and 5 in the three preceding weeks, rose to 15, and included 3 each in Glasgow and Dundee, and 2 each in Edinburgh, Aberdeen, and Motherwell. The deaths attributed to diphtheria, which had been 7, 8, and 2 in the three preceding weeks, rose to 10, of which 5 occurred in Glasgow. The 5 fatal cases of scarlet fever included 3 in Glasgow and 2 in Aberdeen, and were 2 below the average in the earlier weeks of the quarter.

The deaths referred to diseases of the respiratory system, which had been 118, 121, and 117 in the three preceding weeks, rose to 141 in the week under notice, and were 45 in excess of the number recorded in the corresponding week of last year. The deaths attributed to violence numbered 26, against 26 and 21 in the two preceding weeks.

In the 16 largest Scotch towns 1171 births and 848 deaths were registered during the week ended Saturday, June 5th. The annual rate of mortality in these towns, which had been 17·9, 16·1, and 18·2 per 1000 in the three preceding weeks, further rose to 18·9 per 1000 in the week under notice. During the first nine weeks of the current quarter the mean annual death-rate in these towns averaged 18·8, against a corresponding rate of 16·3 per 1000 in the large English towns. The annual death-rate last week ranged from 10·9 in Ayr, 11·7 in Leith, and 11·8 in Coatbridge, to 20·9 in Dundee, 21·0 in Glasgow, and 21·8 in Aberdeen.

The 848 deaths from all causes were 30 in excess of the number in the previous week, and included 147 which were referred to the principal epidemic diseases, against 90 and 145 in the two preceding weeks. Of these 147 deaths, 85 resulted from measles, 40 from whooping-cough, 10 from infantile diarrhœal diseases, 7 from scarlet fever, and 5 from diphtheria, but not one from enteric fever or from small-pox. The mean annual death-rate from these diseases was equal to 3·3, against 1·4 per 1000 in the large English towns. The deaths referred to measles, which had been 49, 36, and 72 in the three preceding weeks, further rose to 85 last week, and comprised 70 in Glasgow, 4 in Aberdeen, 3 each in Dundee, Kirkcaldy, and Clydebank, and 2 in Perth. The deaths referred to whooping-cough, which had been 45, 40, and 43 in the three preceding weeks, fell to 40 last week, and included 20 in Glasgow, 5 each in Edinburgh and Dundee, 4 in Aberdeen, and 2 in Kilmarnock. The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had been 9, 5, and 15 in the three preceding weeks, fell to 10 last week, and included 4 each in Glasgow and Dundee. The 7 deaths referred to scarlet fever, of which 3 occurred in Glasgow and 2 in Aberdeen, were equal to the average in the earlier weeks of the quarter. The fatal cases of diphtheria, which had been 8, 2, and 10 in the three preceding weeks, fell to 5 last week, but showed no excess in any of the towns.

The deaths referred to diseases of the respiratory system, which had been 121, 117, and 141 in the three preceding weeks, further rose to 145 in the week under notice, and were 46 in excess of the number in the corresponding week of last year. The deaths attributed to violence numbered 35, against 21 and 26 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland, with an aggregate population estimated at 1,212,380 persons at the middle of this year, 653 births and 382 deaths were registered during the week ended Saturday, May 29th. The annual rate of mortality in these towns, which had been 19·9, 18·8, and 18·3 per 1000 in the three preceding weeks, further fell to 16·4 per 1000 in the week under notice. During the first eight weeks of the current quarter the mean annual death-rate in these towns averaged 20·1, against corresponding rates of 16·6 and 18·8 per 1000 in the English and Scotch towns respectively. The death-rate in the week under review was equal to 17·0 in Dublin (against 13·1 in London and 19·7 in Glasgow), 16·9 in Belfast, 19·0 in Cork, 16·5 in Londonderry, 17·6 in Limerick, and 7·6 in Waterford, while in the 21 smaller towns the mean death-rate was 14·4 per 1000.

The 382 deaths from all causes were 43 fewer than in the previous week, and included 20 which were referred to the principal epidemic diseases, against numbers declining from 41 to 24 in the five preceding weeks. Of these 20 deaths, 10 resulted from measles, 4 from infantile diarrhœal diseases, 3 from whooping-cough, and 1 each from enteric fever, scarlet fever, and diphtheria, but not one from small-pox. The mean annual death-rate from these diseases was equal to 0·9, against corresponding rates of 1·3 and 3·2 per 1000 in the English and Scotch towns respectively. The deaths attributed to measles, which had been 10, 4, and 9 in the three preceding weeks, were 10 in the week under notice, of which 5 occurred in Belfast and 3 in Dublin. The deaths of infants (under 2 years) referred to diarrhœa and enteritis, which had declined from 10 to 4 in the four preceding weeks, were again 4, and comprised 3 in Belfast and 1 in Wexford. The fatal cases of whooping-cough, which had been 9, 10, and 5 in the three preceding weeks, further fell to 3, of which 2 were registered in Belfast and 1 in Dundalk. The deaths from enteric fever and diphtheria were recorded in Dublin, and that from scarlet fever in Belfast.

The deaths referred to diseases of the respiratory system, which had been 76, 82, and 93 in the three preceding weeks, fell to 63 in the week under notice. Of the 382 deaths from all causes, 120, or 31 per cent., occurred in public institutions, and 9 were attributed to different forms of violence. The causes of 11, or 2·9 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the large English towns the proportion of uncertified causes did not exceed 0·8 per cent.

In the 27 town districts of Ireland 645 births and 396 deaths were registered during the week ended Saturday, June 5th. The annual rate of mortality in these towns, which had declined from 19·9 to 16·4 per 1000 in the four preceding weeks, rose to 17·0 per 1000 in the week under notice. During the first nine weeks of the current quarter the mean annual death-rate in these towns averaged 19·8, against corresponding rates of 16·3 and 18·8 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 19·0 in Dublin (against 13·3 in London and 21·0 in Glasgow), 16·7 in Belfast, 15·6 in Cork, 20·2 in Londonderry, 23·0 in Limerick, and 15·2 in Waterford, while in the 21 smaller towns the mean death-rate was 13·0 per 1000.

The 396 deaths from all causes were 14 in excess of the number in the previous week, and included 27 which were referred to the principal epidemic diseases, against numbers declining from 41 to 20 in the six preceding weeks. Of these 27 deaths, 12 resulted from infantile diarrhœal diseases, 5 each from scarlet fever and whooping-cough, 3 from measles, and 2 from diphtheria, but not one from enteric fever or from small-pox. The mean annual death-rate from these diseases was equal to 1·2, against corresponding rates of 1·4 and 3·3 per 1000 in the English and Scotch towns respectively. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had declined from 10 to 4 in the five preceding weeks, rose to 12 last week, and comprised 8 in Dublin, 3 in Belfast, and 1 in Cork. The 5 deaths referred to scarlet fever were 3 in excess of the average in the earlier weeks of the quarter, but showed no excess in any particular town. The fatal cases of whooping-cough, which had been 10, 5, and 3 in the three preceding weks, rose to 5 last week, of which 3 occurred in Dublin. The deaths attributed to measles, which had been 4, 9, and 10 in the three preceding weeks, fell to 3 last week, and included 2 in Dublin and 1 in Belfast. The fatal cases of diphtheria were recorded in Dublin and Belfast.

The deaths referred to diseases of the respiratory system, which had been 82, 93, and 63 in the three preceding weeks, fell to 56 in the week under notice. Of the 396 deaths from all causes, 128, or 33 per cent., occurred in public institutions, and 12 resulted from different forms of violence. The causes of 12, or 3·0 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 96 English towns the proportion of uncertified causes did not exceed 0·9 per cent.

THE death is announced of Dr. Alfred Hollis of Freshwater, Isle of Wight. Dr. Hollis qualified in 1867 as L.S.A., taking the M.R.C.S. in 1868, the M.B., C.M. of Edinburgh in 1869, and proceeding to the M.D. degree of that university in 1873. He had been civil surgeon in charge of the Royal Engineers at Fort Victoria, and medical officer of health of Yarmouth, Isle of Wight. He was a friend of Tennyson, and one of his medical attendants.

Correspondence.

"Audi alteram partem."

THE METROPOLITAN HOSPITAL SUNDAY FUND: THE APPEAL OF THE LORD MAYOR OF LONDON.

To the Editor of THE LANCET.

SIR,—May I, as president and treasurer of the Metropolitan Hospital Sunday Fund, remind your readers that on Sunday next, June 13th, they have their annual opportunity of showing practical sympathy with the work of our London hospitals.

This year the need is greater and the call clearer than ever, for, in addition to the ordinary work of healing the sick poor, the hospitals have nursed and cared for many thousands of our brave sailors and soldiers, and the doctors and nurses now at "the front" would readily tell how much of their knowledge they owe to hospital training in London.

Every man restored fills a gap in the line; every contribution, therefore, is a help towards victory.

I will gladly receive and acknowledge any sums sent to me by those who cannot be at their place of worship next Sunday.

I am, Sir, your obedient servant,

CHARLES JOHNSTON,
Lord Mayor.

The Mansion House, London, E.C., June 10th, 1915.

As chairmen respectively of the Committees of Distribution, General Purposes, and Finance we warmly support the Lord Mayor's appeal.

(Signed) A. S. CHURCH,
DAVID ANDERSON,
C. ERNEST TRITTON.

THE WAR AND THE SUPPLY OF MEDICAL OFFICERS.

To the Editor of THE LANCET.

SIR,—I was glad to see that in the leading article of your issue of June 5th you have taken up the question of the supply of medical officers in connexion with the war. The experience gained so far by the War Emergency Committee of the Metropolitan Counties Branch of the British Medical Association shows very definitely enormous difficulties in the way, and much might be written on the curious anomalies which have come to the notice of the committee. But the essential question is to prepare a scheme for what you rightly describe as the "mobilisation of the whole profession."

There are only three ways in which the supply of medical officers for the army can be made good: (1) by voluntary recruiting; (2) by compulsory service; (3) by the importation of foreigners.

Compulsory service is probably the most satisfactory solution; but conscription is a political question at present, and however likely it may seem in the future, it must not be counted upon at present. The importation of foreigners would not only cast a slur on the British profession, but might also very well lead to unsatisfactory conditions when the Royal Army Medical Corps officer comes to work side by side with the foreigner at the front.

Can voluntary recruiting satisfy the requirements? To my mind it can, but only under certain conditions, of which the first and most important is that all the different bodies concerned in war service should be in touch with one another. The medical authorities of the War Department are supreme in dealing with officers actually in the army; but they cannot know anything about civilian practice. Therefore they must be in close touch with a body representative of every side of medical practice. Such a representative body should include hospital men, general practitioners, officials of societies such as the Red Cross, and a layman or so to voice the sentiments of the patriotic philanthropist who has placed private hospitals and other such facilities at the disposal of the Government. This body needs a central office and clerical assistance in order that records may be kept. Every medical man should be recorded, with his age and the service for which he is suitable. Every hospital should be noted with its staff and the number of medical men required for its working. When fresh men are required for any service the War Department should communicate with this office, whereupon a list of suitable names would be submitted, from which the war authorities would select the number of men they require. In this way overlapping, over-work, and the over-staffing of hospitals, especially with men of unsuitable age, might be avoided.

To get anywhere near an ideal arrangement of this kind two things are necessary, both in individuals and in bodies of men—(1) the avoidance of jealousy; and (2) the recognition of one's limitations. Much of the difficulty of the present situation is due to jealousy between different bodies, and between individual men. The lack of recognition of one's limitations is shown at the War Office by the attempt to deal in an unorganised way with a body of civilian practitioners of which the department knows nothing; it is shown by the civilian practitioners in attempting to dictate conditions in a matter on which they are ignorant—the organisation of the R.A.M.C.; by the military and civil hospitals, and by the Red Cross Society, which are run without any coördination or settled line of action with regard to their junior staffs and other points.

To me it appears that none of these troubles can be adjusted except through a central bureau, clearing house, exchange, or whatever it may be called. To form such a body and to have it accepted, recognised, and used by the War Department and by everyone interested in the successful organisation of the medical profession, is the idea I suggest; and if ever the suggestion is adopted I would implore all parties to forget their petty jealousies, to recognise their individual limitations, and to work in a united manner for the achievement of success.

I am, Sir, yours faithfully,

Inverness-terrace, W., June 7th, 1915. CHAS. BUTTAR.

THE EFFECT OF ATROPINE IN "GASSED" PATIENTS.

To the Editor of THE LANCET.

SIR,—I was glad to read Dr. Ida C. Tengely's letter on this subject in your issue of June 5th, in that her experiences afford a certain confirmation of the suggestion that atropine is beneficial to those suffering from the effects of irritant gases.

I should like to criticise, if I may, her suggestion for using atropine as a prophylactic measure

against such gases. Surely the "tightness of the chest" or bronchial spasm produced by such irritants is Nature's way of attempting to lessen the amount of these gases inhaled, and consequently to reduce to a minimum the damage to the respiratory apparatus. It follows that the administration of atropine prior to exposure to such gases, by paralysing the broncho-dilator nerve endings, would effectually prevent the slightest degree of broncho-constriction; in other words, a widely dilated air-passage would be ready to receive large inhalations of the irritant fumes. Consequently the damage to the respiratory apparatus would be likely to be increased.

On the contrary, *after* the irritant gases have been inhaled, the air passages being full of an inflammatory exudate and a certain degree of bronchial spasm being present, the subject experiences a "tightness of the chest"—a difficulty in forcing air into the lungs, and probably a still greater difficulty in expelling the CO_2 from the lungs. By relieving the spasm and opening out the air passages to their widest possible calibre atropine is of the greatest value in relieving the distressing and exhausting symptoms.

May I add the fervent hope that if Dr. Tengely has the misfortune to be in the proximity of a 'gas cloud," she will for her own sake keep her dose of atropine until the cloud has passed.

I am, Sir, yours faithfully,

DOUGLAS COW.

Pharmacological Laboratory, Cambridge, June 7th, 1915.

THE MANAGEMENT AND TREATMENT OF YAWS EXEMPLIFIED BY TWO CASES.

To the Editor of THE LANCET.

SIR,—The usual method, as far as I know, of dealing with yaws cases in the tropics in the British West Indies is more or less similar in every one of the islands. There is a faithful similarity among the management and reports that savours strongly of a slavish attachment to red-tapeism and an utter lack of originality. Segregation is the chief object desired, and ordinances are passed from time to time to drive yaws-infected patients to special hospitals, where they reside from three months to three years under treatment, while some are quite satisfied to make the hospital their permanent homes. I cannot say that I have seen anywhere in the British West Indies signs of any vigorous and scientific interest in the management of yaws-infected persons. There have been from time to time spasmodic revivals of interest taken in the disease, but soon to subside into the humdrum routine and indifference that is characteristic of everything West Indian. I have known a case of yaws return from the hospital after a year's residence showing well-marked nodules. It is with a view, if possible, to revive an active interest in this disease that I venture on the publication of this protest, for I feel sure that working on right lines the stamping out of yaws is a measure not only possible but extremely probable. It has already been noted that the prevalency of yaws in the British West Indies is on the decrease, but nobody, I think, has given a thought to the proper reason for this happy result. It has not been brought about by the efforts of the different governments, which if anything are a drawback to its ultimate eradication, nor has it been effected by the successful scientific treatment of yaws cases admitted yearly in the hospitals instituted for that purpose. Those who know and have watched the progress of these West Indian Islands cannot have failed to observe the simultaneous advance of scientific agriculture and the gradual decrease of the disease known as yaws. There is no room to doubt that from the moment that agriculture took on a rational and scientific turn there was an appreciable decrease in the incidence of the disease. This is remarkably exemplified in the small island of Grenada, where the brush has been applied to some advantage. The squatters attached to estates in that island, who lived anyhow and whose wages of 1s. a day were hardly sufficient to maintain the ordinary needs of life, were removed, and agriculture was pushed on a scientific and business-like manner, and almost immediately the prevalency of yaws declined. Grenada is now, I believe, ready to apply the remedy to a section of her population by reclaiming estate lands wherewith to dump her surplus population in a fresh and cleanly made peasantry. In that island the authorities take some interest in the poorer section of the people.

With regard to the treatment of yaws, the system of routine has even been more marked. Since the advent of the spirochætæ the contagiousness of yaws seems to have been adopted universally as an admitted fact, yet, in my humble opinion, there has never been a greater mistake made. Syphilis is constantly being confounded with yaws, which I venture to think is purely and simply a non-contagious skin disease. There is no difficulty in demonstrating the spirochæta pallida of syphilis, and it does not require an expert to do that. I have repeatedly done so, and showed it to intelligent people who took an interest in such matters, yet not once have I been able to obtain the organism of yaws. I cannot see why the one should be more difficult to obtain than the other under the ordinary methods prescribed. The virtues of arsenical preparations as the specific treatment in yaws are not new, and I, years ago, strongly suggested it as the only drug which can be depended upon for a speedy cure of the disease. The coming of salvarsan as a specific treatment in yaws is somewhat of a misfortune, if only for this reason, that the drug has been used too indiscriminately and without technical knowledge on the part of the operators. A second reason is that a very much less dangerous preparation of arsenic, intelligently used, can have the same effect, without endangering the life of the patient. The wholesale injection of salvarsan for the cure of yaws in incompetent hands cannot be too strongly deprecated, while the routine habit of injecting every patient on admission, whether able to bear the remote effects of such a powerful remedy or not, is extremely dangerous. A couple of cases which have come under my notice would suffice to show the carelessness evinced in the use of salvarsan in the routine treatment of yaws.

CASE 1.—A girl aged 17 to 18 years, the only help to poor and hardworking parents. She contracted yaws and was by the ordinance forced to go to a yaws hospital, where she received two injections of "606." On her return from the hospital, apparently in good health, she returned to her gardening. On the sixth day of her return home she was taken with chills, fever, and "bursting" headache. She appeared to be drowsy or dozed, her tongue was protruded slowly and with difficulty, and she could not, or would not, answer questions. I procured two ounces of her urine by catheterisation. I ordered her an immediate hot bath, to be followed by grain doses of calomel and soda every hour for six hours. I found the sample of urine to be highly albuminous, and

there seemed no doubt as to the diagnosis. About 6 P.M. on the same day I found her comatose, having, just before my arrival, had severe convulsions. I then opened the right median basilic vein and let out five ounces of blood, but to no purpose; she died during the night. There was no reason to suppose that the girl showed any signs of kidney disease before her sojourn in the hospital, but that she succumbed to acute uræmia following upon almost complete suppression of urine there can be no room for doubt. I have not the least doubt that the injection of salvarsan received constituted the chief cause of her kidney trouble and her death.

CASE 2.—A little girl, aged 5 years, who had had crabs in the sole of her left foot for two years. She was sent to the yaws hospital where she received an injection of "606" on admission. The site of the puncture was in the left buttock and immediately over the course of the great sciatic nerve. She came to me eight months after the injection for fever and an enlarged spleen, but noticing that she dragged her left leg and had a peculiar gait, I got from the mother the history of the treatment at the yaws hospital. When she left the yaws hospital her left leg was dragging and painful, and there was a lump of about the size of a small Tangerine orange at the site of the puncture. Her mother, observing a small aperture at the top of the swelling, squeezed, and suddenly there spurted out about a teaspoonful or more of matter. The swelling subsided gradually but the left leg and foot remained weak, and she has never been able to regain her proper gait since the operation, it being now over eight months. Here, then, is a child, crippled for life by the inadvertency of a careless operator. What has occurred is fairly obvious, and the damaged nerve is likely to be a source of trouble for the balance of this child's life.

I venture to think that if all the cases of yaws treated with salvarsan were to be systematically examined the statistics of failures would be found to be far greater than the average of successes published in the reports, or the calamities attendant on its use would be so alarming as to demand an immediate check on the indiscriminate use of such a powerful remedy.

I am, Sir, yours faithfully,

Port of Spain, Trinidad, B.W.I. A. B. DUPREY.

ELECTRIC TREATMENT IN ARTERIO-SCLEROSIS.

To the Editor of THE LANCET.

SIR,—With reference to your abstract of a very able article on arterio-sclerosis by Dr. W. Lyne Blight in THE LANCET of June 5th, in the paragraph which treats of the treatment of this condition there is no mention made of the value of electric current. It is generally conceded by those who have any knowledge of electricity as a therapeutic agent that it has the power of modifying pathological arterial tension. The headache, which is present when the sclerosis affects the cerebral vessels, can usually be instantly relieved by the proper application of electricity, and there occurs coincidentally with this a fall in the pressure as registered by the sphygmomanometer. Very often the instrument will register a drop of 20 millimetres in 15 minutes with the patient feeling more cheerful and in better temper. At the same time there is evidence of increased oxidation, the output of the urea is increased, and that of uric acid diminished—that is to say, nitrogenous matter becomes more completely oxidised.

Of the various modalities the current of D'Arsonval is the most efficacious. The manner in which it is applied varies with the operator, some, especially the French physicians, preferring the auto-condensation cage, whereas in America the auto-condensation couch is more general; both give equally good results, provided that a current of sufficient ampèrage be employed, say, 1000 milliampères, which is not difficult, provided that the coil and condensers are of sufficient capacity and a multiple spark-gap be put in circuit. The current may be passed for 10 to 15 minutes, or until the patient flushes or the skin becomes moist. The treatment should be given daily, or thrice weekly, according to the nature of the case and the readiness or otherwise with which the patient responds to the treatment. Frequent reading of the sphygmomanometer should be taken as a guide to the treatment. Headache and a feeling of lassitude are sometimes noted after one or two treatments. These are due to the fact that in consequence of the rapid tissue change induced by the treatment more toxins are liberated than can be carried off. These facts will be more marked should constipation be present and altogether avoided if the bowels are kept freely opened.

I have been using this method for over 10 years and can confidently speak to its beneficial effects, and feel that no monograph or article dealing in arterio-sclerosis or a raised arterial tension is complete without a reference to it.

I am, Sir, yours faithfully,

F. HOWARD HUMPHRIS, M.D.

West Chapel-street, Mayfair, W., June 8th, 1915.

PRODUCTION OF LACERATED WOUNDS BY POINTED RIFLE BULLETS.

To the Editor of THE LANCET.

SIR,—The essential factor which normally prevents a rifle bullet turning over in its flight in the air and during its passage through the denser semi-fluid tissues of the body is that it has a certain rate of spin which bears a definite relationship to the forward velocity. This rate of spin depends, of course, on the number of turns which the grooves of the rifling make in the barrel. If this rate of spin is greatly too fast or too slow for the forward velocity, then the bullet will wobble in its flight and eventually turn over, thus producing a lacerated wound. Now the forward velocity of a bullet diminishes very rapidly owing to the resistance of the air to its flight, but the rate of spin is diminished hardly at all, since as the bullet has a smooth surface it meets with hardly any air resistance, and there being therefore almost nothing to slow it, it naturally keeps on spinning at practically its original rate. To give an instance. It is well known that carefully balanced tops have been constructed which will spin for over half an hour, whereas the bullet has only got to maintain its rate of spin for, at most, a few seconds. The result is that the relationship between the rate of spin and the forward velocity is upset, the former becoming too great proportionately for the latter, and the bullet then has a tendency to turn over and thus produce a lacerated wound.

A bullet which makes a clean entrance wound may produce laceration inside the body both for the above reason and also for another—namely, that a rate of spin which correctly corresponds to the forward velocity in the air may be quite incorrect in the denser semi-fluid medium of the body. This explains also the remarkable changes of direction of track of the bullet in the body, which may occur sometimes even apart from striking a hard structure. Generally speaking the blunter a bullet is, the less tendency has it to turn over in its flight either in the air or in the body—that is to say, the more pointed a bullet is the more closely has its rate of

spin got to approximate to that which is absolutely correct in order to keep it steady and point foremost during its flight as well in the air as in other media such as the body. This explains the much greater frequency with which the pointed bullet is found to have turned over and thus produced lacerated wounds, than was the case with the old round-nosed bullet.

I am, Sir, yours faithfully,

FRANCIS H. KELLY, M.B., B.S.,
Resident Medical Officer, King George Hospital.

June 1st, 1915.

THE TREATMENT OF GAS POISONING.

To the Editor of THE LANCET.

SIR,—When the effects of asphyxiating gas on our soldiers were first reported I suggested to an eminent surgeon at the front the use of oxygen by subcutaneous injection for those with much obstruction in the respiratory passages. He was so good as to send a reply as follows: "We have tried oxygen subcutaneously in several cases as you propose. It has seemed to be useful and we shall continue to try it, for it is right to try everything one possibly can."

As we may, from bomb-dropping, have to deal with similar conditions in this country, I hope the method may be borne in mind. It has been used for some years in France and Canada[1] in many forms of dyspnœa, including those in which inhalation is impeded mechanically. The technique is simple, all that is needed being a cylinder of oxygen, a piece of rubber tubing, and a hypodermic or small aspirating needle. If the tube is not clean a little wool or gauze might be put as a filter into the end near the needle. The disconnected needle is inserted anywhere into loose subcutaneous tissue—e.g., in the flank. If it have entered a vein, as shown by blood issuing, it should be taken out and inserted elsewhere. Oxygen is turned on at low pressure and the cylinder joined up to the needle. When a swelling such as would be produced by 300 c.c. (10 fl. oz.) of normal saline has slowly appeared the proceeding is repeated in another place, the first swelling being gently massaged to aid diffusion. 1·5 litre (say 54 oz.) has been injected altogether and repeated twice in the same day. It is, however, not necessary to measure the amount. No ill-effects have been recorded, nor even inconvenience, whilst in many cases immediate and considerable relief is stated to have occurred.

I am, Sir, yours faithfully,

J. D. MORTIMER, M.B., F.R.C.S.,
Anæsthetist, Royal Waterloo Hospital, &c.

St. John's Wood, N.W., June 3rd, 1915.

MILITARY HONOURS.

To the Editor of THE LANCET.

SIR,—Ignorant alike of the legal position of those important gentlemen called coroners, in respect to soldiers who die in England from wounds received in France, and of military etiquette with regard to the funerals of such victims, I shall be grateful for information upon the various points which I raise.

A soldier, wounded near Ypres, was admitted into the French Hospital, London, where beds have been placed at the disposal of the War Office. Shortly after admission he developed tetanus, from which, in spite of all that we could do, he died. The registrar refused to certify the death without the coroner's approval, and this was, I understand, only obtained after much time, criticism, and correspondence; but before reaching, with apparent reluctance, the happy conclusion that no inquest was necessary, he telegraphed to the only relation the unfortunate man possessed, a sister, a young girl aged 16, in service in Bath, asking if she was satisfied with the treatment received by her brother while in the hospital, a form of "compliment" which the staff of the hospital, who did everything in their power for the patient, properly appreciated.

Owing to the attitude of the coroner there was considerable delay in arranging the details of the man's funeral. At last, all being in order, nearly a week after his decease, a hearse, a corporal, and some twelve soldiers, arrived to take him away. No Union Jack was provided, but the hospital authorities were able to remedy this omission. On arriving at Kensal Green, however, no arrangements had been made for the services of a clergyman, and it was not until three-quarters of an hour had elapsed that the unfortunate man's remains were buried—without "military honours" in the true sense. All the wounded soldiers in the hospital were aware of these omissions—if omissions they were—and their comments were various and free.

It would be interesting to know whether other coroners practise similar proceedings and pay such delicate compliments to other hospitals, and whether these are the usual arrangements approved of by the War Office. Surely it would be possible for the War Office, the coroner, and the hospital authorities to work in conjunction with one another, so that such a state of things could not occur again.

I am, Sir, yours faithfully,

W. H. CLAYTON-GREENE,
Surgeon to the French Hospital.

June 5th, 1915.

THE PULSUS ALTERNANS.

To the Editor of THE LANCET.

SIR,—In THE LANCET of May 29th Dr. C. O. Hawthorne relates a case in which the pulsus alternans has been present on and off for five years without the manifestation of serious cardiac symptoms. The sphygmogram (Fig. 6) illustrating this case I believe answers Sir James Goodhart's question in your present issue, "When is a pulsus alternans not a pulsus alternans, so far as its now accepted gravity of prognosis goes?"

When interpreting tracings such as this it is important to remember that the respiratory muscles attached to the arm move the arm slightly during breathing if it is at all laboured. Unless the arm is kept still by grasping the condyles while the pulse is recorded, and particularly if the wrist apparatus of the sphygmograph is not securely fixed up, the movements of the arm modify the force of impact between the spring and button of the tambour, and thus cause variations in amplitude of the pulse-curves which are often mistakenly ascribed to changes in blood pressure. For example, if there are three pulses to one breath an apparent pulsus alternans may be occasioned, and with higher ratios the grouping of stronger and weaker beats may be such that one or two low beats alternate with two or three high beats. I have a number of tracings illustrating these fallacies, and the seeming alternation in Fig. 6 of Dr. Hawthorne's paper impresses me as being caused in this way. The outline of the curve, as a whole, suggests laboured breathing with a ratio of three pulses to each breath, and the weaker pulse of the groups of three

[1] See THE LANCET, June 22nd, 1912, p. 1726 (Anoxyhæmia of Altitude); Medical Press and Circular, May 1st, 1912, and Dec. 23rd, 1914; also Practitioner, July, 1911, p. 130.

occurs at the height of inspiration. Further, although the tracing is a close likeness, it is not a true picture of the pulsus alternans; one feature is alien—namely, the length of the downstroke of the weaker beat which equals the length of the downstroke of the stronger beat. In descriptions of the pulsus alternans hitherto given no mention is made of the relative length of the downstroke of the beats. To determine this relationship I have examined a large number of tracings, and I find in true pulsus alternans that although the downstroke of the weaker beat may be longer than its upstroke, it is never so long as the downstroke of the stronger beat. On these considerations I submit, with all deference, that the presence of true pulsus alternans in Fig. 6 cannot be accepted without demur.

With regard to the prognostic significance of pulsus alternans this has not been worked out, so far as I know, except in one group of cases—namely, when it occurs in association with myocardial and arterial disease in aged people. I published notes of a number of these cases in the *Quarterly Journal of Medicine*, July, 1913, and at that time ten of the patients were living; since, all except one have died, and none of the lot lived much over three years. In other conditions in which the pulsus alternans occurs present experience only warrants this conclusion, that it adds to the gravity of the outlook.

In my own experience it is not met with in rheumatic heart disease, or acute illnesses in the absence of other signs of danger.

I am, Sir, yours faithfully,

June 5th, 1915. J. DAVENPORT WINDLE.

THE GRATUITOUS TREATMENT OF DEPENDENTS.

To the Editor of THE LANCET.

SIR,—I think it is time, if conscription is approaching, for the profession to reconsider their attitude towards the wives and children of those men who are serving either at the front or training in Britain. The number is increasing daily, and is likely to go on doing so. At the present time we are not paid for the insured among these men—a considerable loss to those with a large panel list—and we appear to be in danger of having our practices still further decreased by a large increase in the number of "dependents."

There is no lack of loyalty in the writer of this letter; he has done his share so far, but the future has to be borne in mind. Loyalty will not feed the doctor and educate his family. There is no wish to pile extra burdens on those whose men are fighting for us, so surely this is a matter for Government to arrange.

I am, Sir, yours faithfully,

May 31st, 1915. M.D.

THE USE OF TRAINED NURSES FOR ORDINARY DUTIES.

To the Editor of THE LANCET.

SIR,—I have before me letters from two trained nurses at present serving in stationary hospitals with the Expeditionary Force. One takes spells of duty as cook and housekeeper, while the other has to cook her own meals and wash up afterwards. Both are thoroughly good nurses and both, I believe, are thoroughly bad cooks. I bring the matter forward in the hope that the authorities may be able to prevent such an apparently unnecessary waste of our nursing material. Trained nurses are scarce, but there are many experienced housekeepers, and the women of France have a deservedly high reputation as cooks.

I am, Sir, yours faithfully,

June 4th, 1915. H. B.

THE MEDICAL PROFESSION AND THE NEEDS OF THE ARMY.

To the Editor of THE LANCET.

SIR,—The doubtful manner in which the records of our naval and military successes, no less than of our failures, have reached us—the hesitation as to the real significance of any news vouchsafed—has been as bad almost as silence. Just as in general affairs it makes for good if as much information as is possible, having regard always to the military and political exigencies of the campaign, were published in clear language, so the medical man would be helped by definite information. No one knows better than he how seriously anxiety that is perhaps not justifiable, and puzzledom that need not exist, militate against the output of good work. As a whole we are an educated people, and the desire to understand before we act has increased among us. The feeling is there, and though its manifestations are sometimes inconvenient, it should not be ignored, for that only leads to its aggravation. The output of the munitions of war is stated to have been delayed and even now to be jeopardised by alcoholic habits in certain centres. The statement, while reiterated by some and flatly contradicted by others, has a basis of fact which we should think by this time has been exposed sufficiently to the nation. But the position might have been made clear sooner, when much ill-will would have been avoided, and possibly ready remedies for some of the evil would have been found already.

It seems still to be in doubt how far most stringent calls are yet to be made on the medical profession, and no definite guidance is given to the medical profession as to how such calls should be met. I am, Sir, yours faithfully,

SENEX.

SCIENCE IN CATALONIA.

To the Editor of THE LANCET.

SIR,—The book noticed last week under this heading may be taken to prove the vitality of the revival of the Catalan language, and we should all wish the revival success.

For small states and small nationalities have a precarious existence to look forward to, should the centralisation and unification of nations and countries so vigorously prosecuted by Germany gain any general adoption in Europe. The principle of nationality for which Germany stands is entirely averse from the employment of their native tongues or dialects by subject races, thus contrasting with the principle of encouraging national individuality practised by ourselves. At no period of her history has Spain produced many men of science of European reputation, a fact in striking contrast to her centuries of eminence in the fields of literature and art. Catalonia certainly gave birth to an alchemist of note in the thirteenth century—namely, Raymond Lully—if, indeed, it be not the case that the alchemical writings ascribed to him are forgeries of the fourteenth and fifteenth centuries. The present revival of the Catalan tongue undoubtedly gives an admirable opportunity for the revival of the study of science in Catalonia. May the opportunity be seized! I am, Sir, yours faithfully,

HISPANICUS.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE CENTRAL COMMITTEE.

A MEETING of the Central Committee was held on Thursday, June 3rd, when the members were put into possession of full details as to the distribution of relief to medical men, pharmacists, and their families and dependents in Belgium. This distribution takes place through the medium of the Aide et Protection aux Médecins et Pharmaciens Belges Sinistrés, extracts from whose recent official reports were published in THE LANCET last week. The Belgian Committee works in this way. A strongly constituted central committee sitting in Brussels has appointed a subcommittee for eleemosynary purposes, and to this subcommittee inspectors report on the merits of the individual cases which have come under their ken in particular districts, and make recommendations as to what grants should be given. Papers are filled up for the information of the subcommittee, and the grants are made on the recommendations of the subcommittee, who are stated, on the whole, to have been less stringent than the actual inspectors. Examples of the kind of cases that have been succoured were published in THE LANCET last week, and to these the following four cases may be added:—

Dr. C—— L——, of T——, is married, and has one dependent son. His money is exhausted, his premises are completely burnt, he has no means of daily subsistence, and an elder son with whom he hoped to shelter is now a refugee. A grant was made of 700 francs.

Dr. L——, of V——, has two dependent children, his house and all the contents have been burnt, and his economies are exhausted. A grant was made of 700 francs.

Dr. C——, of L——, has also two dependent children. His house and all the contents have been destroyed, and two other houses belonging to him have been burnt. His *clientèle* is ruined and dispersed. He still has some savings. A grant was made of 400 francs.

Madame G——, of A——, saw her husband and one son killed in front of her, and her house was pillaged. One son aged 15 remains. The returns of her late husband's pharmacy have become very small indeed. A grant was made of 700 francs.

At the séance of the Belgian Committee on April 29th an important departure was made, as it was agreed that monthly grants should be given to families of medical men and pharmacists in want. It was pointed out that it would be of great advantage to those who were helped if they had more security and had not always to renew their applications in the face of complete want. As a result it was agreed by the Aide et Protection aux Médecins et Pharmaciens Belges Sinistrés that allowances should be paid in suitable cases of from 300 francs to 600 francs per quarter. Already the distribution of three monthly allowances is being made to families of pharmacists. Complete accounts were furnished to the British Committee by the detailed reports of the proceedings at the séance of April 29th and the two previous sessions, so that it was possible to judge of two things: first, that the resources had been very closely husbanded; and, secondly, that more money is wanted, especially in view of the system of tri-monthly grants. Sir Rickman Godlee, the chairman of the British Fund, and Dr. Des Vœux, the treasurer, were accordingly authorised to send out a substantial sum of money to Belgium through the medium of Mr. Herbert Hoover, the chairman of the International Relief Fund. The cheque is being accompanied by a letter from the chairman of the British Central Committee, to Dr. Péchère, the chairman of the Aide et Protection aux Médecins et Pharmaciens Belges Sinistrés, pointing out that the British Committee cannot undertake to send the same amount monthly or even at stated intervals, but that the amount sent must depend partly on the funds at the disposal of the British Committee and partly upon the actual necessities of the time. In this letter the approval of the British Committee is also expressed of the way in which the relief of distressed doctors and pharmacists and their families has been undertaken by Dr. Péchère's committee.

THE WEEK'S SUBSCRIPTIONS.

The subscriptions received by Dr. Des Vœux up to Tuesday evening last, in addition to those previously acknowledged, are as follows:—

	£	s.	d.
Hampstead Division, B.M.A. (per Dr. Coode Adams, Chairman and Sec.)	21	0	0
Dumfries and Galloway Division, B.M.A. (per Dr. J. Dewar Robson, Hon. Sec.)—			
Dr. R. B. Lorraine	1	1	0
Mrs. R. B. Lorraine	1	1	0
Dr. Cowan	0	10	6
Dr. Robson (supplementary)	0	9	9
Dr. W. Bramley Taylor	2	2	0
Brussels Medical Graduates Asso. (per Dr. Major Greenwood, Treas.) (eighth donation—total, £127 15*s.* 6*d.*)	1	1	0
Greenwich and Deptford Division, B.M.A. (per Dr. C. G. Wallis, Hon. Sec.) (second donation—total, £45 8*s.* 6*d.*)—			
Dr. Allan Massey	0	10	0
Dr. A. Whitehead	0	5	0
Mr. F. A. Williamson (from weighing machine)	0	6	6
Mr. A. Peake	2	12	9
Mr. J. W. Reed (per British Drug Houses, Ltd.)	2	2	0
Mr. John Cooper	0	10	6
Northamptonshire Division, B.M.A. (per Dr. Baxter, Hon. Sec.)—			
Dr. A. W. Cooke	1	1	0
North of England Branch of Fund (per Dr. James Don and Mr. A. S. Perceval, Hon. Secs.) (thirteenth donation, total £709 15*s.* 6*d.*)—			
Dr. E. Gofton	1	1	0
Dr. J. R. Mitchell	1	1	0
Dr. C. Franks	1	1	0
Dr. W. Misselwhite	2	2	0
Dr. W. W. Stainthorpe	0	10	6
Dr. F. T. Hare	1	1	0
Dr. J. Danholm	1	1	0
Dr. J. Malcolm Shaw	4	0	0
Dr. J. W. Weir	1	1	0
Dr. W. H. Bishop	2	2	0
Dr. W. J. Phillips	1	1	0
Dr. F. F. Foster	2	2	0
Dr. G. R. Fortune	1	1	0
Dr. Craigie Gray	1	1	0
Dr. A. Pain	1	1	0
Dr. G. H. Harbottle	1	1	0
Dr. W. Horsfield	1	1	0

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham-gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Ltd.

THE APPEAL FOR SURGICAL INSTRUMENTS.

The Master of the Society of Apothecaries begs to acknowledge the receipt of surgical instruments kindly contributed by the following donors since the publication of the last list:—

Mr. T. P. Beddoes, Welbeck-street, W.; Mrs. W. J. C. Johnstone. Weybridge; Mr. F. W. Smallwood, Handsworth; and Mrs. E. G. Roberts, Uxbridge.

Instruments should be sent to the Apothecaries' Hall, Blackfriars, E.C.

CENTENARIANS.—Mr. John Mitchell, a Crimean veteran, has died at Navan, county Meath, in his 108th year. —The death has been reported in the borough of Stepney of a person aged 102.

CLEAN MILK SOCIETY.—The council of this society are preparing plans for an "infants' welfare" station in one of the poorest quarters of London, where clean milk can be sold to the poor and where mothers can be educated in the care of their young children, on similar lines to the work done in New York. The work of the society will embrace efforts to improve conditions at dairy farms, in railway transportation, and at milk shops, as well as the methods of distribution to consumers' houses and the care of milk in the home.

The War.

THE CASUALTY LIST.

THE names of the following medical officers have appeared in the casualty lists since our last issue :—

Wounded : Surgeon D. D. Pinnock, R.N. (Armoured Car Division), Captain K. B. MacGlashaw, Lieutenant J. T. Heffernan, Lieutenant J. S. Ward, Lieutenant R. O'Kelly, all of the R.A.M.C.; Captain J. J. Black, Australian Medical Corps; Temporary Surgeon J. R. Kay-Mouat, R.N.V.R., Home Battalion,

Missing : Lieutenant J. A. Gillespie, R.A.M.C. (attached 2nd Northumberland Fusiliers).

DEATHS AMONG THE SONS OF MEDICAL MEN.

The following name must be added to the sons of medical men who have fallen in the war: Lieutenant R. W. C. Edginton, only son of Dr. R. W. Edginton, of Edgbaston, Birmingham.

THE MOBILISATION OF THE MEDICAL PROFESSION.

The continuous increase in the number of medical men engaged with the fighting forces, which, whether voluntarily or by compulsion, will sooner or later have to be augmented to a degree greatly beyond anything that has yet been done, coupled with the considerable casualties sustained by the medical services, must inevitably drain the medical reserves of the country and deplete the ranks of the civil medical profession. Indeed, these results have already ensued to a considerable degree. But the making of doctors cannot be expedited as can the making of munitions, because no two or more processes in the moulding of the raw material can be carried out simultaneously. While 50 operatives could undoubtedly make a shell in less time than five, that is not the case with the making of a medical man. The consequence is that our supply of medical men cannot be expedited to meet the demand. For this reason also not only will the medical assistance required for the needs of the civil population be depleted, but as the war goes on the very strain thereof and the upset of those economic conditions on the stability of which the maintenance of a high state of individual efficiency depends will greatly increase the proportionate need for such assistance. While at all times prevention is infinitely more important than cure, the factors that tend to undermine the public health, and the evolution of conditions favouring the rise and spread of epidemic disease, are enormously increased during a prolonged war, as even a cursory study of history will demonstrate, so that undermanning of the sanitary service, whose duty it is to remove all causes and forestall all conditions that favour the spread of disease constitutes another problem of the first magnitude. A medical correspondent of the *Times* asks whether it may not be possible by a rearrangement of work to meet the demands and secure a margin of safety. Admitting the difficulties, he points out that while in the poorer-class districts the doctors are so fully occupied that no rearrangement is possible, in the suburban areas of large towns are to be found a considerable number of young men with comparatively little work, who are engaged in the building up of a practice. Such a practice when established represents invested capital, but, unlike the capital of an established commercial concern, it is almost purely personal, and is transferable in only a limited degree, tending to evaporate with the departure of the creating personality. Where, therefore, a practice is only in course of establishment it may be presumed that organised effort would have the effect of setting free a considerable number of such young men. The medical work might be centred in the hands of a few selected physicians already established there whose whole energies would be required, and thus a great waste of waiting time, which at present the nation cannot afford, would be obviated. The necessary adequate organisation might perhaps come through State intervention, for, among other things, it is clear that the assurance of some form of compensation on the recurrence of normal conditions would be necessary for those who have been dispossessed of their entire capital, which comprises mainly the time, labour, and money expended in the building up of an intangible and untransferable connexion, consisting of a personal attachment to themselves based on the estimate they have been successful in establishing of their own skill and capacity. Especially is this the case with those whose dependents have absolutely nothing outside of this on which to rely.

THE BRITISH CASUALTIES.

On Wednesday afternoon Mr. Asquith informed the House of Commons that the total British casualties in the French and Mediterranean Expeditionary Forces, including the Territorial, Overseas Dominions, and Indian contingents, up to the end of May comprised 10,955 officers and 247,114 non-commissioned officers and men killed, wounded, and missing. Of these, 3327 officers and 47,015 men have been killed. The figures, which do not refer to the navy, are not higher than had been anticipated by those who have followed the course of the war carefully, but they will serve to bring home to the public in a forcible and even heart-rending way the magnitude of the struggle in which the British Empire and our Allies are engaged. They also explain the urgent demand for medical assistance, and the need that this assistance, as it is forthcoming, should be used to the best advantage, every care being taken to see that full value is extracted from the supply.

THE TREATMENT OF WOUNDS IN WAR.

In the second number of the recently established *Journal of the Royal Naval Medical Service* appeared a paper detailing the results of a large number of experiments which had been conducted under the superintendence of a committee consisting of Sir William Watson Cheyne, Fleet-Surgeon P. W. Bassett-Smith, and Mr. Arthur Edmunds. The work of the committee dealt with the question of the prevention of the growth of septic organisms in a wound, and a very large number of experiments were made in order to investigate the rate of diffusion of various antiseptic substances through blood-clot, agar, and portions of tissue. Many very ingenious expedients were devised in order to test thoroughly the antiseptic value of various substances, and so much care was taken that the results may be accepted with confidence. The object of the investigation was to study the best method of dealing with wounds in the interval between the infliction of the wound and the arrival of the patient at a dressing station or field hospital, where the wound can be properly attended to—an interval not infrequently of several hours and sometimes even of days. The

mere application of a field dressing over the wound, with or without cleansing of the surface or of the skin around, can have little effect on the spread of infection in the interior of the wound, though it will certainly tend to prevent the entrance of fresh infective material. It is clearly therefore desirable, if possible, to devise a method of inhibiting the growth of bacteria even in the depths of the wound. The material employed must be capable of diffusing through blood-clot, and to a certain extent also through the tissues, so that it may be capable of reaching the septic organisms which have invaded the wound. In the paper will be found a very full account of the experiments performed, and we need only mention their results. The committee decided that on the whole the most suitable antiseptic seemed to be a mixture of salicylic and boric acid, and that the most suitable application was a mixture of salicylic acid and boric acid, and that this was best applied as a powder to be dusted over the wounds thickly, while a cresol paste 20 per cent. in lanolin and wax base should be injected into the interior of wounds. The cresol paste is contained in paint tubes with nozzles two inches in length, so that it can be injected into the interior of the wound. So far the method has been employed only in a few cases in man, but it has been decided to make an extended trial of it, and therefore the material has been supplied to the navy. It is clear that it is only by an extended trial that the efficacy of the treatment can be established.

In the present issue of THE LANCET appears a rather trenchant criticism of the method by Mr. J. Godfrey Saner, who points out certain objections to its employment. The first objection is that the use of the paste prevents drainage, which is of so much importance in all septic wounds, and the second is that the method is not based on results obtained in actual wounds but on experiments in the laboratory. As to the interference with drainage, it may be said that the method does not inhibit the use of drainage tubes, and in fact in one case reported in the paper in which the method was employed a drainage tube was used. We fully agree that it is essential that in any deep wound there should be ample arrangement for drainage, otherwise the septic material is pent up and severe septic complications may result. The other objection, that the method is not based on the results in actual wounds, is puzzling, for the trial is being made, and the results will be examined with the greatest interest. The method has been elaborated with extreme care in the laboratory, and the names of the committee are a guarantee that the procedure suggested is at least based on careful experimental data. We know that Mr. Saner's views are not peculiar to himself, and, indeed, we have received communications to the same effect from others; but the probability is that there is not yet sufficient evidence forthcoming to warrant any decision.

Modifications in the Iodine Treatment of Wounds.

Dr. Douglas H. Stewart, a New York surgeon, has suggested employing as an agent in the treatment of wounds a combination of calomel and tincture of iodine in the proportion of 1 to 1000. The calomel forms iodide of mercury. For washing and dressing wounds 1 drachm of this solution is diluted to 2 ounces in water. The wound is cleaned and filled with the solution, toilet paper being employed for swabbing and, when folded and soaked with the solution, for draining. The wound is covered with soaked toilet paper, and over this a layer of dry toilet paper is placed and then bandaged with gauze or other material. It is claimed that toilet paper answers well for the purpose, inasmuch as it is porous and absorbent, and serves as an excellent draining medium; it does not adhere to the wound, and does not spread, curl, or unravel into threads. In aseptic procedure the wound is washed with the iodine-mercury solution, and drained with a strip of gauze fried in lard at a temperature of 175° C., and bandaged as usual. The following is the author's description of his technique.

The advantage of having the gauze covering fried in lard is that lard can be brought to a very much higher temperature than water, and consequently germs and spores will be more surely destroyed. Also the gauze permeated with lard can be stripped off the wounds without causing pain and without injuring the surface of the wound and thereby impeding granulation and healing. This mode of treatment is applicable to all wounds which are infected and will be of great value in the present campaign. Success in treating wounds by this method has followed hospital practice.

The combination intensifies the antiseptic action of the iodine without producing any escharotic effects. It appears that at the seat of war in France it is extremely difficult, in many cases impossible, to disinfect wounds thoroughly owing to the presence of anaerobes, such as the organisms of tetanus, malignant œdema, and B. aerogenes capsulatus. In particular wounds have been very frequently infected with the spores of tetanus. Most of the antiseptic agents employed are impotent against the organisms of tetanus, and if this combination will destroy the anaerobes it should be of the greatest service. There are three points to be considered. 1. The combination of calomel and iodine, making an antiseptic of greater strength by far than iodine alone. 2. The use of toilet paper as first dressing, it being non-adhesive, absorbent, and a good draining medium. 3. The practice of employing gauze boiled in lard up to a temperature of 347° F. as a first dressing, it being non-adhesive, and the temperature to which the lard can be raised being capable of killing germs and spores. The application of the ordinary tincture of iodine produces a tanning effect upon living tissue and affords a roof or shelter to anaerobes which may penetrate a little beyond the point of actual contact. The character of cases already treated resembles in many respects wounds produced in battle; of course, gunshot wounds being excepted.

The same surgeon, Dr. Douglas Stewart, referring to the method of treating infected wounds: (1) with hydrogen peroxide, (2) with tincture of iodine, and (3) bandaging with gauze pads and strips, says every one of these three steps may be improved upon. He uses sodium perborate in the place of hydrogen peroxide.

A saturated solution of this salt (about 2½ per cent.) may be quickly made by adding to a cup or other vessel full of water a little greater quantity than can be dissolved, using the residue as an index of saturation, and this solution may be poured into a wound in the identical manner or mode that is employed with the use of H_2O_2. Effervescence is not synonymous with efficiency, and if the perborate solution yields rather less bubbling its well-known bactericidal effects would tend to prove that some of its gas was more profitably expended than merely escaping into the air. The solution is alkaline, but perishable. The powder form is, however, very stable. Consequently a small package (say, ℈ to ½ ℥) could be easily carried by each soldier. Sufficient of this could be dissolved in his cup, and the solution poured into the fresh wound by the man himself or one of his comrades, and the remainder of the treatment left for more skilful hands. The tincture of iodine, when applied to a wound in the same or a similar manner, burns like fire, it slows healing, and instead of affording protection against anaerobic infections seems rather to roof over and afford them shelter. Were our forebears so very far wrong in expressing approval of "laudable pus," because open septic wounds with abundant streptostaphylococcus overgrowth are not ideal homes for the germs of tetanus, but rather unfriendly or unfavourable environments?

Shuford's solution was planned for hypodermic use. Its formula is: Sod. bibor., acid. salicyl. aa ℥i., acid. carbolic. ℥iii., glycerin. ℥i. This is too strong for a wound application, though he has used it when all the conditions apparently (certain soils, toy pistol wounds, &c.) promised tetanus, but the wound will slough if it is applied more than once; consequently it has been modified to sod. bibor., acid. salicyl., acid. carbol., aa ℥iii., glycerin. ℥iss., aq. q.s. ad ℥iv. The wound should be filled with this as it is germicidal, analgesic, and altogether an improvement over iodine.

The growth of granulations through the meshes of a gauze bandage renders sticking and tearing off necessary but uncomfortable accompaniments to its removal. Sheets of toilet paper (wood-pulp) may be folded or rolled into drains or lamp-wick shapes, the wound bridged diagonally or longitudinally with these which are to be roofed over with smooth sheets, and then gauze, put outside of and over all, will not stick, as there is a shield between it and the growing granulations; or if the paper does adhere it may be quickly softened and washed away by sponging with warm water and washing soda (¼ per cent.). Further attention is facile and agreeable to all concerned because removal has not caused additional trauma.

MILITARY HOSPITALS AT MILAN.—A Swiss correspondent sends us an interesting description of Milan in war-time. "Milan," he says, "is preparing to receive and to look after the greatest possible number of wounded soldiers. Thanks to the generosity of some of the large city institutions and of numerous citizens 20 military hospitals, all furnished according to the requirements of modern medical and surgical science, have been organised, one of which, containing 400 beds, is installed in the seminary of the archbishopric. All the hospitals are linked up by tramways with the railway stations, and since the lines are of the same gauge the wounded will be conveyed without delay or change of vehicle from stations nearest the firing line to the hospital doors. Five gradients leading from the Milan railway station have been built and the invalids will be conveyed along one or other of these gradients according to the categories of sick or wounded they belong to. The installation of the hospitals has been organised in the same practical manner. The principal communes in the neighbourhood have joined in the work with the result that Milan and the surrounding district have placed 25,000 beds at the disposal of the army. The problem of personnel has been very easily solved for the population has offered a more than sufficient number of volunteers, all of whom readily accept the task allotted be it ever so modest. This municipal hospital service has been organised side by side with that of the efficient Italian Red Cross Society. Milan has profited by the past eight months to organise a sanitary service based upon the knowledge gained from battlefield experiences. What Milan has done has been done also with equal enthusiasm by other towns in Northern Italy. The organisation of the hospitals and the training of the staffs began at the end of last year, when well-informed and clear-sighted people realised that the participation of Italy in the war was inevitable."

VACANCY FOR A MEDICAL OFFICER.—We are asked to state that a vacancy occurs for a medical officer willing to go on foreign service, to be attached to the Royal Engineers, East Anglian Division (T.F.). Usual pay and allowances for Territorial Force, R.A.M.C. Apply, Medical Officer in Charge, Royal Engineers, Radlett, Herts.

WOUNDED ALLIES RELIEF COMMITTEE.—The committee has received a report stating that the excellence of the French railway system and the improvements in emergency treatment make it possible for men to cover the 400 miles between the trenches and the hospital at Limoges in rather less than 30 hours. The Limoges hospital, which accommodates 150 patients, has received the warmest praise from General Delorme, of the French Medical Service, and the French Government has given 3000 francs for a hut to accommodate 20 more patients. Out of 600 cases treated there have been only 16 deaths. The hospital is now devoted exclusively to French wounded, for owing to the differences in religion the Government has found it advisable to provide special hospitals for native troops. The English are splendidly looked after in their own hospitals. The administrator appeals for gifts of tea, glass cloths, bath and roller towels, and slippers with leather soles, which may be sent to the Wounded Allies Relief Committee, Sardinia House, Kingsway, W.C., or to the Hôpital Militaire Anglais, Limoges, France.

The committee has opened a Kensington branch at 93, Lexham-gardens, Kensington, W., where a spacious house has kindly been lent rent free. The whole output of hospital equipment goes to the committee's hospitals, of which there are now three in France and two in the Balkans. In its first four days of working the branch has had the daily assistance of 100 ladies, but it can accommodate as many more, and would welcome other workers. The officials also warmly invite the public to call and see the work in progress.

THE DEPAGE HOSPITAL, LA PANNE.—We are informed that a newly finished building, containing 300 beds, belonging to Dr. Depage's hospital was entirely destroyed by fire on the night of June 6th. No lives were lost.

INCREASED HOSPITAL ACCOMMODATION FOR WOUNDED SOLDIERS IN DUBLIN.—Through the generosity of Lord Iveagh the hospital accommodation for wounded soldiers in Dublin is about to be increased by 367 beds. Of these 200 will be in an annexe to the King George V. Military Hospital which Lord Iveagh has promised to build. Room for the remainder will be found in unused wards in the several Dublin hospitals.

THE WAR AND THE CANADIAN MEDICAL ASSOCIATION.—A Canadian correspondent writes: "The annual meeting of the Canadian Medical Association, which was to have been held this year in July in Vancouver, B.C., has been cancelled, as also has been the annual meeting of the Canadian Association for the Prevention of Tuberculosis, in the same city, about the same time. This is on account of so many prominent officers and members being away in Europe. The editor of the Journal has taken a medical commission. The general secretary of the association is with the McGill University General Hospital. Members of the finance committee and of the executive council are also serving abroad. In the meantime the affairs of the association and the Journal are being conducted by Dr. G. G. Campbell and Dr. J. W. Scane (Montreal). The association will have a strenuous year, but in the hands of these two such able men the best possible will be done for the association in the circumstances, and the association is very grateful to them for the proffer of their unpaid help."

THE BRITISH RED CROSS AND THE ST. JOHN AMBULANCE ASSOCIATION.—It is announced that a public meeting will be held on Wednesday next, June 16th, at 3 P.M., at the Mansion House, in aid of the funds of these institutions. The speakers will include Lord Lansdowne and Sir Edward Clarke.

Lady Wolverton calls attention to the fact that the demands upon the Red Cross Society are very heavy and that house linen and garments, both cotton and woollen, are wanted in large quantities, the garments most urgently needed being shirts and pyjamas—for summer wear,—vests, pants, handkerchiefs, and socks.

THE GRETNA RAILWAY DISASTER: A MILITARY TRAIN.—Sixty-six men of the Royal Scots injured in the Gretna railway disaster were brought to Edinburgh from the hospitals in and about Carlisle, and were taken to Craigleith Military Hospital, arriving at the Waverley station about 3.30. They travelled by the North British Railway in a Territorial military train recently fitted up by Mr. William Whitelaw, chairman of the North British Railway. It consists of seven vehicles, two of which contain cots, and has many advantages over the ordinary hospital train. Two tiers of cots are swung from the roof of the carriage in a manner similar to that in use on naval hospital ships, which eliminates vibration. Indiarubber fenders prevent the cots from coming into contact with the sides of the carriage when the train is in motion. An excellent feature of this type of train is that from the moment the wounded soldier is put in his cot until he is laid in bed in hospital he never leaves the cot, thus obviating one of the drawbacks of permanently fixed beds. The train, which includes a dining-car, was in charge of a R.A.M.C. officer, with two Red Cross sisters and R.A.M.C. orderlies; three Red Cross lady cooks prepared the food.

This was the first time the train had brought men north to Edinburgh. Hitherto it has been used to remove naval patients from Queensferry to other hospitals, but it is expected that in future greater use will be made of it in bringing wounded soldiers to Edinburgh. After the terrible railway accident the work of getting the men who could walk to the motor-cars was quickly accomplished, but there were others who had to be lifted from the train to the motors, and not a few limped badly. Injuries from burns were common. There were 26 cot cases.

SUPPRESSION OF THE BELGIAN RED CROSS BY GERMANY.—At the request of the Belgian Legation in London the Press Bureau has made public the fact that Baron von Bissing, the German Governor-General of the occupied provinces of Belgium, by a mandate dated April 14th, dissolved the Belgian Red Cross Central Committee and forcibly took possession of the funds and archives of the society, delegating Count B. von Hatzfeld to administer the institution. The Governor-General had previously demanded the help of the Belgian Red Cross for an institution he proposed to found for aid and protection to working women. The Red Cross Society refused on the ground that its objects were not within the scope of Red Cross work, in which they were supported by the International Red Cross Committee at Geneva.

OFFICIAL RESPIRATORS.—It is announced from the War Office that an improved type of respirator has been adopted on the recommendation of a special expert committee, and that there are ample supplies of this pattern available at the front. No unofficial help, therefore, is needed in this matter.

REST HOUSES FOR MILITARY NURSES.—The Duke of Portland and Lord Plymouth issue a weighty appeal in support of a hostel where nurses can be temporarily lodged while resting from their labours or awaiting orders which it is proposed to establish in close connexion with Queen Alexandra's War Fund for Nurses of the Red Cross and the Order of St. John of Jerusalem. It will serve as a clearing house also, nurses needing serious attention being sent to hospitals, others undergoing only dental or minor treatment remaining in the hostel, while yet others would be put into communication with the many kind people who are willing to offer them hospitality. During the war its advantages should be free. When the war is over it is hoped that it will remain as a permanent hostel where nurses can live at a moderate cost in congenial company. Subscriptions may be sent to the honorary treasurers at 3, Grosvenor-square, W., cheques crossed "London City and Midland Bank."

Lieutenant Andrew Philip, who had only recently given up his post as medical inspector of schools for the Keighley district of Yorkshire to take a temporary commission in the Royal Army Medical Corps, was suddenly taken ill after his first parade and fell, fracturing his skull. He was removed to the Royal Infirmary, Hull, where he died the following day.

PAYMENT OF CIVILIAN MEDICAL PRACTITIONERS FOR ATTENDANCE ON SOLDIERS' WIVES AND FAMILIES.—A medical correspondent, signing himself "Sine Premio Opifex," writes that seeing in THE LANCET Mr. Tennant's remarks about the various duties that medical men might perform in the war and the payments they might expect, he wrote to the War Office that he had attended the wives and children of a good many soldiers and supplied them with medicines, &c., at his own expense, and asking to whom he could render his account. He encloses the ensuing correspondence—viz., a letter dated April 14th, 1915, stating that the engagement of medical men for part-time service is in the hands of the local authorities, and directing him to communicate with the Deputy Director of Medical Services, Headquarters, Southern Command, Salisbury; a copy of his letter in accordance therewith asking if he may send his account there, and a reply therefrom stating that it is regretted that fees cannot be claimed by him as he does not come under paragraph 496 of the Regulations of the Army Medical Service, which reads: "The wives of N.C.O.'s and men who are borne on the married roll, with their children and stepchildren (under 14 years of age), will when present with their corps or in receipt of separation allowance, be allowed medical attendance and medical comforts at the public expense only at stations where there is a medical officer, or when a civilian medical practitioner is engaged for attendance on the troops, and provided in each case that they reside within the prescribed radius (one mile)." It will therefore be seen that civilian medical men cannot claim fees for attendance on the dependents of soldiers unless they have been specially engaged for attendance on troops, and then only for visits if the soldier's wife and family live within a mile from the doctor.

Medical News.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—At the annual election of the Royal College of Surgeons the following were elected for the ensuing year:—President: Mr. F. Conway Dwyer. Vice-President: Mr. W. Taylor. Secretary: Sir Charles A. Cameron. Council: Mr. W. Stoker, Sir Charles A. Cameron, Sir L. H. Ormsby, Mr. R. D. Purefoy, Mr. H. G. Sherlock, Sir Charles B. Ball, Mr. J. B. Story, Sir Thomas Myles, Sir Arthur Chance, Mr. S. M'C. Boyd, Sir Robert H. Woods, Mr. R. Lane Joynt, Mr. R. B. M'Causland, Mr. T. E. Gordon, Mr. E. H. Taylor, Mr. A. J. M'A. Blayney, Mr. R. C. B. Maunsell, Mr. T. N. Smith, and Mr. W. I. Wheeler.

LIVINGSTONE COLLEGE.—Commemoration Day was celebrated on June 3rd, the chair being taken by the former Principal and Founder, Lieutenant C. F. Harford, R.A.M.C. The Principal said that the session had been a successful one, but the call for medical men was now more urgent, and the committee would probably be shortly deciding to discontinue college sessions until the declaration of peace, so as to free those remaining on the staff to help in the national crisis. Two members of the staff had already taken commissions. It was thought that possibly the college, with its beautiful grounds, would be accepted by the War Office as an auxiliary hospital. Lieutenant Harford spoke of how the war affected Livingstone College as a brotherhood—unbroken, even though some who had been trained there together were now technically regarded as enemies—and as a missionary agency. Although Livingstone College was an international college, those responsible for carrying it on were British men and women and therefore had national responsibilities, whence it was possible that it might be found necessary to close down for a time. The meeting was then addressed very shortly by seven old students of the college. Mr. F. H. Hawkins, LL.B., secretary of the London Missionary Society, in the concluding address, said that in the first ten years of the history of this mission in Central Africa, 11 of their missionaries died and 6 were invalided home, and with one exception were never able to return to their work. In the last 12 years they had not had a single death in the mission or a single case of a man being invalided home. The explanation was that men had learned what Livingstone College was teaching them—the care of their own health, hygienic conditions, the need for building their houses in a healthy position, for draining the land round their houses, and for taking care of their heads when out in the sun. The missionary societies were very grateful to Livingstone College for the splendid services it had rendered.

PRIESTLEY MEMORIAL LECTURES.—The sixth of these lectures, given under the auspices of the National Health Society, is announced to take place in the Barnes Hall of the Royal Society of Medicine, Wimpole-street, W., on Wednesday next, June 16th. The lecturer, Dr. A. E. Shipley, Master of Christ's College, Cambridge, will deal with the dangers of flies and lice in connexion with the war. Sir James Crichton-Browne will preside.

THE Board of Trinity College, Dublin, has appointed Miss Euphan Montgomerie Maxwell to the recently established Montgomery lectureship in ophthalmology. Miss Maxwell is a graduate in medicine and surgery of the University of Dublin, a Fellow of the Royal College of Surgeons in Ireland, and holds the position of assistant surgeon and pathologist at the Royal Victoria Eye and Ear Hospital, Dublin.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Parliament and the War.

ALL the attention of Parliament is now absorbed in matters arising out of the war. The Coalition Government has met the House of Commons, and since the resumption of business after the Whitsuntide recess the energies of Parliament have been devoted to passing the Ministry of Munitions Bill.

British Casualties in the War.

The Prime Minister states that the casualties in the French and Mediterranean Expeditionary Forces (including the Territorial Force and the Colonial and Indian contingents) to May 31st are as follows:—

	Officers.	Other ranks.
Killed	3,327	47,015
Wounded	6,498	147,482
Missing	1,130	52,617
Total	10,955	247,114

The total for all ranks is thus 258,069. The Prime Minister has promised soon to give the complete figures for the Navy and Naval Division.

HOUSE OF COMMONS.

MONDAY, JUNE 7TH.

Proposed New Sanatorium for Middlesex.

Mr. NIELD asked the President of the Local Government Board whether, in connexion with the proposed building of a sanatorium by the Middlesex County Council at Mayland, Essex, he was aware that since the outbreak of war the council had decided that, while completing the purchase of the site, it was not desirable to apply for the consent of the Board to borrow a large sum of public money for the building, or to apply to the Public Works Loan Commissioners for a loan, or go to the public in competition with the Treasury at a time like the present when the whole resources of the country were urgently required to be husbanded or employed for the vigorous prosecution of the war in order to bring about its speedy conclusion; and whether such course had received his sanction.—Mr. LONG replied: I am aware of the resolutions passed by the county council at their meetings in January and May last. No sanction on my part is required in the circumstances described in the question, but if the honourable Member wishes to know whether I think that undertakings of this kind should be postponed in the present circumstances I can inform him that I do.

Mr. NIELD asked the Chancellor of the Exchequer whether he was prepared to sanction the advance by the Public Works Loan Board of the sum requisite for the erection by the Middlesex County Council of a large sanatorium for the treatment of tuberculosis.—Mr. MCKENNA answered: This matter is one for the President of the Local Government Board in the first instance and, having regard to the reply which he has given on this subject to-day, I do not think it probable that any application for a loan will come before the Public Works Loan Board or the Treasury for sanction at present.

Medical Officers of the Territorial Force.

Colonel GREIG asked the Financial Secretary to the War Office whether any steps were being taken to remedy the hardships of medical officers of the Territorial Force who had been mobilised with regard to promotion and the question of a gratuity.—Mr. FORSTER replied: I hope to be in a position to make a statement on this question before long.

TUESDAY, JUNE 8TH.

Medical Certificates for Sick Soldiers.

Sir J. D. REES asked the Under Secretary for War whether commanding officers had been instructed to accept certificates given by duly qualified medical men to sick soldiers on furlough residing at a distance of over two miles from military hospitals; if so, whether any such certificates had been ignored and the sick soldiers who obtained them punished; and, if so, whether such action was approved by the superior military authorities.—Mr. TENNANT answered: The rule in force is that when a man forwards a civil medical practitioner's certificate recommending an extension of furlough arrangements are made for his readmission to the nearest military hospital, where he will remain under treatment until he is fit to rejoin his unit or depôt. I am informed that no cases had come to notice prior to the issue of the instructions I have mentioned of civilian medical practitioners' certificates being ignored, either with or without the approval of the superior military authorities, once it had been ascertained beyond doubt that the certificates were genuine.

The Eyesight of Recruits.

Sir IVOR HERBERT asked the Under Secretary for War whether any arrangements had been made for the special treatment of recruits found to be suffering from defective eyesight caused by the conditions under which they had been industrially employed before enlistment which rendered them temporarily unfit for military service.—Mr. TENNANT answered: Men suffering from the severer forms of defective eyesight should not, of course, be enlisted, and if by any chance they have got into the army they should be discharged. Men suffering from the milder forms would receive the same treatment that they would have in civil life—i.e., correction of any error of refraction, tonic drugs, rest or modified exercises, and local treatment to the eye.

Discharges from the Army.

Sir IVOR HERBERT asked the Under Secretary for War whether the attention of the Secretary of State had been drawn to the large number of discharges from the new armies for physical and other causes; and whether any measures were being taken to prevent the enlistment of such discharged men and to retain their services for the industrial or agricultural operations for which they might be fitted.—Mr. TENNANT said in reply: The matter referred to in the first part of the question receives the constant attention of the military authorities. Men who have enlisted since the beginning of the war and have once been discharged are not accepted for re-enlistment, with the sole exception of those discharged on purely medical grounds whom the examining medical officer, with full knowledge of the cause of discharge, pronounces to be fit for service at home and abroad.

Meat Inspection.

Mr. WILLIAM THORNE asked the Financial Secretary to the War Office a question to elicit the conditions under which frozen meat for the use of the troops was inspected.—Mr. FORSTER replied: The scope of the inspection is well understood. All meat imported is examined and certified as free from disease at the port of shipment. Before issue to the troops it is passed by a board of officers, which includes an officer of the Army Service Corps.

WEDNESDAY, JUNE 9TH.

Medical Students and War Service.

Mr. MCCALLUM SCOTT asked the Under Secretary of State for War whether the arrangements previously announced, whereby medical students in their final year of study who had only their final examinations to pass might be released from combatant corps if they applied in order to complete their medical studies and qualify for medical service, had been altered; and, if so, in what respect.—Mr. TENNANT answered: The ruling applied to medical students who were serving in the ranks and has not been altered.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BARFORD, A. M., M.R.C.S., L.R.C.P. Lond., D.P.H., has been appointed Medical Officer of Health and School Medical Officer for Newark.

JOHNSON, J., M.B., C.M. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Birtley District of the county of Durham.

JONES, PETER, M.D. Edin., has been appointed Medical Officer of Health to the Abergele and Pensarn Urban District Council.

RAE, HARRY, J., M.B., Ch.B. Aberd., has been appointed Tuberculosis Officer for the county of Aberdeen.

ROSS, V. A., M.B., C.M. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Harris District of the county of Inverness.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

BIRKENHEAD BOROUGH HOSPITAL.—House Surgeons.

BIRMINGHAM CORPORATION CITY HOSPITAL, Lodge-road.—Temporary Female Assistant Resident Medical Officer. Salary £250 per annum, with board, residence, and washing.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £250 per annum, with apartments, attendance, &c.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Junior House Surgeon. Salary £100 per annum, with residence, board, &c.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—House Surgeon. Salary £100 per annum, with board-residence.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £120 per annum, with board, residence, and laundry.

BRADFORD EDUCATION COMMITTEE.—Assistant School Dentist. Salary £300 per annum.

BRISTOL ROYAL INFIRMARY.—Throat, Nose, and Ear House Surgeon for six months. Salary at rate of £120 per annum, with board, apartments, and laundry.

BUENOS AYRES, BRITISH HOSPITAL.—Senior Resident Medical Officer, unmarried. Salary £275 per annum. Also Assistant Resident Medical Officer, unmarried. Salary £250 per annum, with board, lodging, &c.

BURY INFIRMARY.—Senior and Junior House Surgeons. Salary £175 and £150 per annum respectively, with board, residence, and washing.

BUXTON, DERBYSHIRE, DEVONSHIRE HOSPITAL.—Assistant House Physician for six months. Salary £100 per annum, with apartments, board, and laundry.

CARDIFF, WELSH METROPOLITAN WAR HOSPITAL, Whitchurch, near Cardiff.—Pathologist and Bacteriologist. Salary £1 per day, with board, apartments, and washing.

CARLISLE NON-PROVIDENT DISPENSARY.—Resident Medical Officer. Salary £200 per annum, with apartments (not board).

CIRENCESTER, GLOS., 1ST SOUTH MIDLAND MOUNTED BRIGADE FIELD AMBULANCE.—Two Medical Officers to complete 2nd Line (Territorial).

COVENTRY AND WARWICKSHIRE HOSPITAL.—House Surgeon. Salary as arranged. Also Third House Surgeon. Salary 6 guineas per week, with board and residence.

CROYDON UNION.—Assistant Medical Superintendent of Infirmary and Assistant Medical Officer of Workhouse and Children's Homes. Salary £225 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Clinical Assistants in Out-patient Departments.

FOLKESTONE, ROYAL VICTORIA HOSPITAL.—House Surgeon. Salary as agreed, with board, residence, and laundry.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway, N.—House Surgeon for six months. Salary at rate of £60 per annum, with board, residence, and laundry.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £150 per annum, with board, residence, and laundry.

HARTLEPOOLS HOSPITAL.—House Surgeon. Salary £125 per annum, with board, washing, and lodging.

HEREFORD COUNTY AND CITY ASYLUM.—Locum Tenens Assistant Medical Officer. Salary £7 7*s.*, with board.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physician for six months. Salary 30 guineas. Also Assistant Resident Medical Officer. Salary £100 per annum, with board and residence.

INVERNESS, NORTHERN INFIRMARY.—House Surgeon. Salary £150 per annum, with board, &c.

LEAMINGTON SPA, WARNEFORD, LEAMINGTON, AND SOUTH WARWICKSHIRE GENERAL HOSPITAL.—Second Resident Medical Officer. Salary £200 per annum, with board, residence, and laundry.

LIVERPOOL, WALTON INSTITUTION, Rice-lane, Walton.—Assistant Resident Medical Officer, unmarried. Salary at rate of £300 per annum, with board, &c.

MACCLESFIELD GENERAL INFIRMARY.—Resident Medical Officer. Salary £150 per annum, with board and residence.

MANCHESTER CORPORATION, BAGULEY SANATORIUM.—Superintendent. Salary £400 per annum, with house, coal, light, and washing.

MANCHESTER COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham Hill-road.—House Surgeon. Salary £120 per annum, with apartments and board.

METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL, Fitzroy-square, W.—House Surgeon. Salary £150 per annum. Also Honorary Anæsthetist and Honorary Clinical Assistant.

NEW ZEALAND WAR CONTINGENT ASSOCIATION, 25, Victoria-street, London, S.W.—Resident Medical Officer for New Zealand Auxiliary Hospital, Walton-on-Thames. Salary at rate of £7 7*s.* per week, with board.

NORWICH, CITY OF.—Assistant School Medical Officer. Salary at rate of £400 per annum.

NOTTINGHAM CHILDREN'S HOSPITAL.—Female House Surgeon. Salary at rate of £150 per annum, with apartments, board, and washing.

NOTTINGHAM GENERAL HOSPITAL.—Senior House Physician and Assistant House Physician. Salary at rate of £300 and £250 per annum respectively, with board, residence, and laundry.

OLDHAM COUNTY BOROUGH.—Assistant Schools Medical Officer. Salary £325 per annum.

POPLAR BOROUGH COUNCIL, BOW MATERNITY CENTRE.—Medical Practitioner for two and a half hour session every Thursday afternoon. Salary 21*s.* a session.

PORTSMOUTH ROYAL HOSPITAL.—House Surgeon for six months. Salary £150 per annum, with board, &c.

ROCHESTER, KENT, ST. BARTHOLOMEW'S HOSPITAL.—Assistant House Surgeon, unmarried, for six months.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Assistant Resident Medical Officer. Salary at rate £90 per annum, with board, residence, and laundry.

SALFORD COUNTY BOROUGH.—Medical Officer for Maternity and Child Welfare work. Salary £300 per annum.

SALISBURY GENERAL INFIRMARY.—House Surgeon and Assistant House Surgeon, unmarried. Salary £150 and £100 per annum respectively, with apartments, board, lodging, and washing.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Senior and Junior House Surgeons. Salary £100 and £80 per annum respectively, with board, residence, &c.

SHEFFIELD ROYAL INFIRMARY.—House Surgeon and Assistant House Physician. Salary £100 per annum, with board and residence.

SOUTHAMPTON, PARISH INFIRMARY, Shirley Warren.—Resident Assistant Medical Officer. Salary £250 per annum, with apartments, rations, washing, and attendance.

SOUTHWARK UNION INFIRMARY, East Dulwich-grove, S.E.—Assistant Medical Superintendent. Salary at rate of £250 per annum, with board, apartments, and washing.

STOCKPORT INFIRMARY.—Senior House Surgeon. Salary £200 per annum, with board, washing, and residence.

SWANSEA GENERAL AND EYE HOSPITAL.—House Physician. Salary £125 per annum, with board, apartments, and washing.

THROAT HOSPITAL, Golden-square, W.—Resident House Surgeon.

TINGWALL, WHITENESS, AND WEISDALE PARISH.—Medical Officer and Public Vaccinator. Salary £45 per annum.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Isle of Wight.—Assistant Resident Medical Officer.

WALSALL AND DISTRICT HOSPITAL.—Assistant House Surgeon and Anæsthetist. Salary £150 per annum, with board, residence, and laundry.

WEST BROMWICH AND DISTRICT HOSPITAL.—House Surgeon and Assistant House Surgeon, unmarried. Salary £150 and £120 per annum respectively, with residence, board, and laundry.

WEST HAM AND EASTERN GENERAL HOSPITAL.—Resident Medical Officer. Salary £160 per annum. Also House Physicians. Salary £120 and £100 per annum, with board, residence, and washing.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary £150 per annum, with board, apartments, and washing.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Milngavie, in the county of Dumbarton; at Charlestown, in the county of Mayo; and at New Quay, in the county of Cardigan.

Births, Marriages, and Deaths.

BIRTHS.

CANE.—On June 3rd, at Orton Longueville, Peterborough, to Captain (R.A.M.C.) and Mrs. L. B. Cane, a daughter.

HODGES.—On June 5th, at Queen Anne-terrace, Plymouth, Barbara, wife of Lieutenant G. M. Hodges, R.A.M.C., of a daughter.

TEICHMANN.—On June 5th, at Sitka, Chislehurst, the wife of Captain O. Teichmann, R.A.M.C. (T.), Worcestershire Yeomanry, of a son.

MARRIAGES.

BRAHAM—WIBORG.—On June 5th, in London, Lieutenant Noel Braham, R.A.M.C., to Ruth, daughter of the late Ludvig Wiborg, of Brevik, Norway.

CARMICHAEL—HEPWORTH.—On June 3rd, at the Parish Church, Morley, Yorks, Donald Livingstone Carmichael, Ch.B., M.D., to Constance Margaret, eldest daughter of Dr. and Mrs. George Hepworth, of Clarence Lodge, Morley.

DAINTY—LOCKHART.—On June 5th, at Holy Trinity, Brompton, Lieutenant Ralph George Dainty, R.A.M.C., to Marjorie Kathleen, youngest daughter of the late William Castleton Lockhart.

WILSON—WHITWELL.—On June 1st, at St. Stephen's Church, Enfield, Lieutenant (temporary) Cecil William Wilson, R.A.M.C., to Mary Dorothy, daughter of Mr. and Mrs. Henry Whitwell, of Winchmore Hill.

DEATHS.

DANE.—On June 7th, at Bournemouth, Harold Dane, M.R.C.S., L.R.C.P. Lond.

ROSE.—On June 2nd, at a Nursing Home in London, Deputy Surgeon-General H. J. Rose, formerly in the 2nd (Queen's) and West Yorkshire Regiments, aged 82 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

BALE, JOHN, SONS, AND DANIELSSON, LIMITED, London.
A Guide to the Use of Tuberculin. By Archer W. R. Cochrane, M.B. Lond., F.R.C.S. Eng., Major I.M.S., and Cuthbert A. Sprawson, M.D., B.S. Lond., M.R.C.P., Major I.M.S. Price 5*s.* net.
Dental Directory, 1915. Enlarged edition. Price 3*s.* 6*d.* net.

BUTLER AND TANNER, Selwood Press, Frome, England.
Brazil (1913). By J. C. Oakenfull. Price 7*s.* 6*d.* net.

HILTON AND CO., Calcutta. SIMPKIN, MARSHALL, AND CO., London.
Treatise on Materia Medica and Therapeutics. By Rakhaldas Ghosh, L.M.S. Cal. Univ. Edited by Lieutenant-Colonel B. H. Deare, I.M.S., with the assistance of Birendra Nath Ghosh, F.R.F.P.S. Glasg. Sixth edition. Price 7*s.* 6*d.* net.

HOEBER, PAUL B., New York.
Cancer, its Cause and Treatment. By L. Duncan Bulkley, M.D., Senior Physician, New York Skin and Cancer Hospital. Price $1.50 net.

MACMILLAN COMPANY, THE, New York.
The Body in Health. By M. V. O'Shea and J. H. Kellogg. Price 3*s.* 6*d.*

SHAW AND SONS, London. HOEBER, PAUL B., New York.
Lectures on the Heart: comprising the Herter Lectures (Baltimore), Harvey Lecture (New York), and an Address to the Faculty of Medicine (Montreal). By Thomas Lewis, M.D., F.R.C.P., D.Sc., Physician to the City of London Hospital.

UNIVERSITY PRESS, Cambridge.
Infant Mortality. By Hugh T. Ashby, B.A., M.D., B.C. Camb., M.R.C.P. Lond., Visiting Physician to the Manchester Children's Hospital. Price 10*s.* 6*d.* net.

WRIGHT, JOHN, AND SONS, Bristol.
The Medical Annual: A Year Book of Treatment and Practitoners' Index. 1915. Price 10*s.* net.

Notes, Short Comments, and Answers to Correspondents.

MRS. TIMOTHY BRADLEE'S EXPLOIT: A CORRECTION.

IN the *Boston Medical and Surgical Journal* of September, 1872, appeared the following note:—"On the 21st of August Mrs. Timothy Bradlee, of Trumbull County, Ohio, gave birth to eight children—three boys and five girls. They are all living and healthy, but quite small. Mrs. Bradlee has given birth to two pairs of twins. She was a triplet, her mother and father being twins and her grandmother the mother of five pairs of twins." This case in due course found its way into important publications, such as Gould and Pyle's "Anomalies and Curiosities of Medicine" and the paper on duplicate twins by Wider in the *American Journal of Anatomy*. Recently Dr. G. H. Parker, of Harvard University, determined to ascertain beyond doubt the authenticity of the case as it was so remarkable. He wrote to Mr. M. B. Tayler, clerk of the courts, Trumbull County, stating that further information concerning it would be gratefully received. The latter replied that on inquiry he found that there was no truth in the statement. It seems that a practical joker went into one of the local newspaper offices and set up an article which he succeeded in having printed in one or two copies of the paper. The article was then taken out and the type distributed. But one of the copies was sent to a New York journal. The consequences probably never entered the joker's imagination. American medical journals of the highest class gave currency to an absurdity which has passed into standard works. We cannot recall any similar instance in comparatively modern times in which an error of so obvious a sort has crept into medical literature. Having circulated so long and obtained such publication, it will probably be further copied. We are pleased to do our part in helping to prevent this.

WHAT IS A CONSULTANT?

To the Editor of THE LANCET.

SIR,—With regard to the case put by "Enquirer" in your issue of June 5th (p. 1214), the customary procedure varies according to locality. In the English provinces no one would feel doubtful. I remember being astonished three or four years ago when a patient told me Sir Blank Dash had attended him regularly during an attack of typhoid. The distance was much greater than from the Cavendish-square quarter to the Langham Hotel, while the fee per visit, since the man was a small publican, must have been considerably under 3 guineas. Indeed, in the provinces the consultant's only perceptible *differentia* is that he does not undertake midwifery, unless that and gynæcology be his main occupation. Even this is by no means an absolute rule, for I know of a recently appointed clinical teacher at a well-known provincial university, a man of middle-age, who does midwifery as a part of his general practice.

I am, Sir, yours faithfully,

June 8th, 1915. ONLOOKER.

THE GERMAN ARMY MEDICAL CORPS.

FOUR years ago the following note was published in THE LANCET on the inadequate supply of candidates for the German Army Medical Corps:—"The younger members of the medical profession in Germany are not as a general rule inclined to enter the Army Medical Corps, and the undoubted advantages which a medical man may obtain through holding a commission in the army are not sufficiently appreciated; the result is that candidates are not numerous, and there is some difficulty in filling the vacancies which arise in the ordinary course of events. The medical officers of the army have for the most part received their professional education in the Army Medical School, and for each year of gratuitous instruction in that establishment they are required to serve two years in the army; some of them, however, but these are a minority, study as civilians and afterwards join the Army Medical Corps. The civilians who become medical officers on active service are continually diminishing in number, so that many appointments which would properly be given to medical officers on active service in the junior grades have to be filled by civilians accomplishing their half year of compulsory military service." The causes of this state of things were considered to be insufficient remuneration of the junior grades, a feeling of personal independence not compatible with the requirements of military discipline, restriction of private practice through being so much away from home on military duties, and monotony of practice in garrison towns. To provide the army with trained specialists, assistantships in hospitals and clinics were reserved for army medical officers exclusively, but the officers in many cases who had been trained as specialists at the expense of the army left the service and settled as specialists in the towns.

The medical officers also complained that with respect to position and privileges they were at a disadvantage as compared with regimental officers of equivalent rank. As regards this question of rank we announced in THE LANCET of March 14th, 1914, that General von Falkenhayn, the Minister for War, attended a meeting of the Berlin Society of Army Doctors and informed the assembled medical men that the Emperor by a stroke of the pen had put an end to the sharp distinction between army doctors of whatever rank and the youngest combatant officer who has received a commission. This order gave them disciplinary rights—rights to ceremonial salutes, the right to wear the officer's scarf, and the right to be buried with military honours. The delicate question of precedence remained unsettled. The position in Germany, as with the Allies, has no doubt been altered since the above information was published, but it illustrates the evolution of the Army Medical Service in all lands, and its necessary recognition as an integral part of any army which must be recognised as such, and not as an arm which may be attached or detached and fostered or neglected as merely mechanical exigencies seem to dictate.

A TESTIMONIAL TO VACCINATION.

THE following extract from a letter recently received in England from a newspaper reporter in Calcutta has been sent to us by his mother. The letter gives many details as to the cases of small-pox in the hospital which have no particular medical significance, but his advocacy of vaccination is particularly forcible:—

"I suppose you would like to hear something about my attack of small-pox. Well, there is an epidemic of it in Calcutta just now, and a lot of Europeans (and tons of natives) are down with it. I must consider myself very lucky in having it in a mild form—so mild that I was convalescent in a few days after being admitted. After that it was simply a question of waiting until there was no possibility of anyone catching it from me. Jove! it was like being in gaol. Before I was attacked I was one of the silly fools (they can be called by no other name) who scoffed at vaccination; but after seeing what I have seen this past fortnight my views on that matter have entirely changed. There is not the slightest doubt that the two vaccination marks on my arm saved me from—well, perhaps the worst. In every instance the bad cases were those in which the patient had either never been vaccinated at all, or else not for many many years."

SILVER PAPER FOR CHARITY.

THE fact that there is money in unconsidered trifles is made plain in a recent issue of the *East Ham Echo*, which states that some time ago the sons and daughters of the readers of that paper were enrolled into a league to show the young idea how to combine. It appears that about 18 months ago it was suggested that the members should collect silver paper, which could be sold and the money sent to the East Ham Hospital. The advice was taken and the young people set about collecting the silver paper. Since then members have sent in their collections on three separate occasions, with the result that the sum of £8 15*s.* has accrued to the hospital.

A PORTABLE SHOWER-BATH.

THE tonic and exhilarating effect of a cold shower-bath on the person whose circulation reacts is well known. There is experienced a shock, the cutaneous vessels at once contract and send the superficial blood-supply inward, while respiration is momentarily arrested, and then slowed and increased in depth. The return of the blood in increased volume to the surface is the reaction which gives a sensation of warmth and general well-being. The stimulus is greater when a shower-bath with some force is used. To meet those instances in which the luxury of a shower-bath is not a part of the domestic bath equipment Messrs. Bostel and Sons, of Ebury-street, London, S.W., have introduced a portable shower-bath which answers the requirements very well. It consists of two containers 10 inches in diameter and 4 inches deep fitting within each other, one a plain round metal vessel and the otner a similar appliance, but with its bottom perforated. The first container is filled with water at any

desired temperature. The perforated container with the perforations upward is then placed over it, which it encircles like a telescopic tube. On now inverting the appliance so that the perforated disc is underneath the water is discharged in a smart shower. It is important that the shower should be smart and not a dribble, as otherwise the effect on the system is depressing rather than stimulating. This is done by four air tubes fixed in the perforated container so that the air freely entering at the top allows the water to escape with a rush. It is very neatly made and moderately priced. While it is correctly described as portable it incidentally serves as a receptacle for articles of toilette as, for example, a sponge, comb and brush, so that the space it occupies can be utilised in the travelling kit. It is suggested that its use in a campaign would be much appreciated, and no doubt it would. Many will be glad of it, however, as an adjunct to the domestic bath equipment.

RHUBARB POISONING.

F. W. (London) writes: With reference to the letters on this subject which have recently appeared in THE LANCET, everyone knows of cases where the eating of rhubarb has caused severe diarrhœa and sickness and a sensation of having been poisoned. One old gentleman, after some uncomfortable experiences, refuses to eat the "forced" rhubarb, but always waits for what he terms the "field" rhubarb. He had been informed that a good deal of forced rhubarb was grown in coal-mines where it was warm and the dung of the pit ponies was used as manure. I do not know whether there is, or ever was, any truth in this, but it is the reason of his abstinence.

AN INDEMNITY POLICY FOR THE MEDICAL MAN.

A NOVEL feature of insurance is introduced by the Norwich Union Fire Insurance Society, whereby a policy can be taken out which provides, in addition to the usual benefits for accidental loss of life, limbs, or sight, complete indemnity against financial loss incurred by accident or sickness, including diminution in earnings or salary, and the cost of employing a locum tenens. The amount of the indemnity is decided upon by the assured, and he pays the premium accordingly. Under the scheme there is no question of getting a certain weekly allowance, be the temporary disablement trivial or severe; the definite amount of indemnity is stated on the face of the policy, and that is the amount upon which the assured can draw, as and when required, for medical fees, nursing-home charges, travelling and other expenses of convalescence, additional household expenses, and payment of locum tenens, irrespective of the period of disablement. The common sense of this arrangement suggests that it might have been made a regular feature of insurance years ago. Full particulars of benefits and premiums can be obtained on application to the society at St. Giles-street, Norwich.

SCOPOLAMINE.

MANY notices have lately been appearing in the lay press with reference to the use of scopolamine anæsthesia, or so-called "twilight sleep," in obstetrics. A few years ago the Council on Pharmacy and Chemistry of the American Medical Association came to the conclusion that scopolamine and hyoscine are synonyms for the same alkaloid. THE LANCET of Feb. 10th, 1906 (p. 393), contained an annotation entitled "The Danger of Using Scopolamine as an Anæsthetic," in which it was stated that the anæsthetic was losing favour in France, and warnings were also given regarding the dose and administration of the drug. Apparently since then little has been published concerning the dangers, if we may judge from the recent campaign in the lay newspapers in its favour. It may not be generally known that "scopolamine" owes its name to G. A. Scopoli (1723–1787), a naturalist and chemist who was born at Cavelese, Tyrol, and whose name Linnæus gave to a genus of solanaceous plants resembling hyoscyamus, thence termed Scopolia.

THE HARRIS GAS FIRE.

Mr. Reginald P. Harris, of the Commercial Gas Company, Poplar, London, E., has introduced an interesting novelty in the design of a gas fire. Instead of the radiants consisting of the ordinary upright clay tubes they are curved, so that the front of the fire, viewed from the side, is shaped thus C. The effect of this is to concentrate more radiant heat downwards, and this is obvious, inasmuch as when a person stands a short distance from the fire he soon finds his boots and feet getting warm. That, of course, presents certain advantages, particularly as people so often sit near the fire with their feet close to the fender. We were inclined to believe at first that this arrangement would interfere with the hygienic working of the fire, as this particular construction, which means that the radiants bulge well in front of the fire, seemed likely to result in the escape of combustion products into the room. On applying, however, the test for hygienic efficiency, described in our issue of Feb. 7th, 1914, this fire showed no escape of combustion products into the room whatever, even when no elbow or flue was attached to the exit nozzle. This fire, therefore, may be added to the list we have published of those gas fires which have satisfactorily passed THE LANCET test. The Harris gas fire is made by the Vulcan Stove Company, Exeter.

SOMALILAND STATISTICS.

A REPORT on the affairs of this Protectorate (established in 1884) for the year 1913–14 has been presented to Parliament. It states, *inter alia*, that no reliable information is forthcoming as to the Somali population of the country at the present time, though 300,000 is given as an approximation. A census taken in 1911 of the alien community in the three coast towns of Berbera, Bulhar, and Zeyla showed the following results:—Europeans, 26; Indians, 741; Arabs, 1857; mixed, 789. There is a general hospital at each of the three towns named. At Berbera there is accommodation for 42 beds, at Bulhar for 4, and at Zeyla for 6. There is a dispensary attached to each of the hospitals, and in the aggregate there were 38,987 attendances during the year. The climate of the Protectorate is chiefly remarkable for its very dry character. In the interior it is healthy, generally speaking, throughout the year, but the same can scarcely be said of the coast belt. Here during the "Kharif"—i.e., the months of June, July, August, and not infrequently half of September—the atmospheric conditions are very trying for Europeans, and the effect on the nervous system is most pronounced. Terrific gales of sand-laden wind are then prevalent and the heat is intense, with the thermometer registering 105°–115° F. in the shade at mid-day, and seldom falling below 100° at night. Most of the sickness, however, occurs during the months immediately preceding and immediately following the "Kharif." During the months of November, December, January, and February the climatic conditions of the coast greatly improve.

THE REMINGTON "J."

THERE has recently been put upon the market by the makers of the well-known Remington typewriter a new model known as the Remington "J," with visible writing, which will do all the work of its predecessors, and has the advantages of being about half their weight and half their price. A practical trial of this new member of the Remington family convinces us of its utility for the medical man, who will find it to be a neat, handy, and, in its specially designed carrying-case, a very portable machine, capable of being set up anywhere at a moment's notice by merely throwing back the cover, and as speedily removable when desired. The Remington Typewriter Company, 100, Gracechurch-street, London, E.C., will send a booklet to those interested, on application.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 9.30 a.m. by Steward's Instruments.)

THE LANCET Office, June 9th, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
June 3	30·022	S.W.	...	103	65	52	50	53	Cloudy
,, 4	30·178	S.W.	...	114	74	53	57	59	Overcast
,, 5	30·190	S.W.	...	118	73	55	57	60	Overcast
,, 6	30·160	S.W.	...	120	76	58	61	64	Cloudy
,, 7	30·070	S.W.	...	121	81	55	57	59	Fine
,, 8	29·830	S.	...	127	89	59	67	73	Fine
,, 9	29·900	E.	...	116	76	63	59	66	Cloudy

The following magazines, journals, &c., have been received:—Journal of Laryngology, Rhinology, and Otology, British Journal of Children's Diseases, Edinburgh Medical Journal, St. Bartholomew's Hospital Journal, British Dental Journal, Tropical Diseases Bulletin, Proceedings of the Pathological Society of Philadelphia, Report on Researches on Sprue in Ceylon, Medical Review, South African Medical Record, Cornell University Medical Bulletin, Pediatrics, Dublin Journal of Medical Science, Charing Cross Hospita Gazette, &c.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Papers:—Mr. W. L. Balls and Mr. F. S. Holton: Analyses of Agricultural Yield. Part II. The Sowing-date Experiment with Egyptian Cotton, 1913 (communicated by Dr. F. F. Blackman).—Mr. E. J. Russell: Soil Protozoa and Soil Bacteria (communicated by Mr. H. T. Brown).—Prof. W. M. Hicks: On the Enhanced Series of Lines in Spectra of the Alcaline Earths.—Prof. H. F. Baker: On Certain Linear Differential Equations of Astronomical Interest.—Prof. K. Pearson: On the Partial Correlation-ratio.—Mr. S. Skinner and Mr. F. Entwistle: The Effect of Temperature on the Hissing of Water when flowing through a Constricted Tube (communicated by Sir W. N. Shaw).—And other papers.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

THURSDAY.

SECTION OF DERMATOLOGY (Hon. Secretaries—S. E. Dore, A. M. H. Gray): at 5 P.M.

Exhibition of Cases (at 4.30 P.M.):

Dr. G. Pernet: (1) Morphœic Sclerodermia; (2) Extra-genital Primary Chancre.
Dr. Parkes Weber: Blue Tattooing of the Skin from Hypodermic Injections in a Morphinist.
Dr. E. A. Cockayne (introduced by Dr. Parkes Weber): Congenital Sclerodermia with Sclerodactylia.
Dr. G. F. Stebbing (introduced by Dr. Parkes Weber): (1) Case for Diagnosis; (2) Case for Diagnosis (?) Lichen Planus of Long Duration.
Dr. D. Walsh: Case for Diagnosis: with microscopical sections.
Mr. Laming Evans (introduced by Dr. Phineas S. Abraham): Acute Atrophodermia.
Dr. Phineas S. Abraham: Case of "Oriental Sore" (after treatment): with microscopical sections.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

FRIDAY.—8.30 P.M., Annual General Meeting. Paper:—By the late Dr. R. M. C. Linnell: Some Observations on Malaria on Rubber Estates. Discussion:—Quinine Prophylaxis in Malaria.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

THURSDAY.—5 P.M., Croonian Lectures:—Surgeon-General Sir David Bruce, C.B: Trypanosomes causing Disease in Man and Domestic Animals in Central Africa. (Lecture I.)

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patients (Mr. E. Gillespie). 2.30 P.M., Medical Out-patients (Dr. T. R. Whipham); Gynæcological Out-patients (Dr. Banister). 3 P.M., Medical In-patients (Dr. R. M. Leslie).

TUESDAY.—2.30 P.M., Surgical Operations (Mr. Carson). Clinics:—Medical Out-patients (Dr. A. G. Auld); Surgical Out-patients (Mr. Howell Evans); Nose, Throat, and Ear Out-patients (Mr. H. D. Gillies). Radiography (Dr. Metcalfe). 3.30 P.M., Medical In-patients (Dr. A. J. Whiting). 4.30 P.M., Clinical Demonstration:—Dr. A. J. Whiting: Selected Medical Cases.

WEDNESDAY.—Clinics:—2.30 P.M., Throat Operations (Mr. Gillies). Children Out-patients (Dr. T. R. Whipham); Eye Out-patients (Mr. R. P. Brooks); Skin Out-patients. 5.30 P.M., Eye Operations (Mr. R. P. Brooks).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patients (Dr. A. J. Whiting); Surgical Out-patients (Mr. Carson); Radiography (Dr. Metcalfe). 3 P.M., Medical In-patients (Dr. R. M. Leslie).

FRIDAY.—2.30 P.M., Surgical Operations (Mr. Howell Evans). Clinics:—Medical Out-patients (Dr. A. G. Auld); Surgical Out-patients (Mr. E. Gillespie); Eye Out-patients (Mr. R. P. Brooks).

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.
THURSDAY.—5.15 P.M. Clinical Lecture.

For further particulars of the above Lectures, &c., see Advertisement Pages.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

The rates of subscriptions, post free from THE LANCET Offices, have been reduced, and are now as follows:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 1 0	One Year	£1 5 0
Six Months	0 12 6	Six Months	0 14 0
Three Months	0 6 6	Three Months	0 7 0

(The rate for the United Kingdom will apply also to Medical Subordinates in India whose rates of pay, including allowances, is less than Rs.50 per month.)

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London County and Westminster Bank, Covent Garden Branch") should be made payable to the Manager, MR. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

TO COLONIAL AND FOREIGN SUBSCRIBERS.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied.

SOLE AGENTS FOR AMERICA—Messrs. WILLIAM WOOD AND CO., 51, Fifth Avenue, New York, U.S.A.

Communications, Letters, &c., have been received from—

A.—Miss E. Austin, Clonakilty; Lieutenant Adolphe Abrahams, R.A.M.C., Aldershot.

B.—Messrs. Burroughs Wellcome and Co., Lond.; Bethnal Green Guardians, Lond., Clerk to the; Messrs. Bailey and Son, Lond.; Dr. A. E. Boycott, Radlett; Dr. B. N. Burjorjee, Rangoon; Mr. J. P. Buckley, Manchester; Mr. A. E. J. Barcroft, Maryborough; British American Tobacco Co., Lond.; Barnstaple, Medical Officer of Health of; Messrs. P. Blakiston's Son and Co., Philadelphia; Bolingbroke Hospital, Lond., Secretary of; Messrs. Birchall, Liverpool; The T. K. Bellis Turtle Co., Lond.; Messrs. Bishop, Lond.; Mr. W. Bentley, Lancaster; Mr. F. J. C. Broome, Harrogate; Mr. Harold Barwell, Lond.; Mr. C. Beesley, Exmouth; Dr. Y. Billing, Stockholm; Mr. Ernest Burchell, Brighton; Board of Education, Lond., Secretary of.

C.—Mr. Rolf Creasy, Wimereux; Mr. J. Jackson Clarke, Lond.; Messrs. E. Cook and Co., Lond.; Messrs. J. and A. Churchill, Lond.; Dr. Douglas Cow, Lond.; Coventry and Warwickshire Hospital, Secretary of; *China Medical Journal*, Ningpo, Editor of; Mr. H. Godden Cole, Liverpool; Messrs. J. and A. Carter, Lond.; Surgeon G. Cochrane, R.N., Lond.; Lieutenant J. R. Caldwell, R.A.M.C.; Mr. Henry D. Chisholm, Philadelphia; Messrs. R. Carruthers and Sons, Inverness; Miss F. Cashmore, Ashford; Mr. J. Cameron, Glasgow; Colonial Nursing Association, Lond.; Colchester, Medical Officer of Health of.

D.—Dr. J. B. Dinnan, Meridan, U.S.A.; Dr. Roger Duclerq, La Flocellière; Mr. Downing, Wallington; Mr. J. Dawson, Lond.; Mr. G. Davison, Lond.; Messrs. Dale, Reynolds, and Co., Lond.; Messrs. W. Dawson and Sons, Lond.; Major C. W. Duggan, R.A.M.C.

E.—Mr. D. V. E. Erickson, Lond.; Messrs. Elliott, Son, and Boyton, Lond.; Messrs. Evans, Sons, Lescher, and Webb, Lond.; Dr. F. W. Edridge-Green, Lond.

F.—Dr. A. G. Timbrell Fisher, Long Ashton; Dr. L. D. Frescolin, Philadelphia; Dr. Paul Fildes, Lond.; *The Fishing Gazette*, Lond., Editor of; Factories, Chief Inspector of, Lond.

G.—Mr. B. N. Ghosh, Lond.; General Medical Council, Lond.; Messrs. Gordon and Gotch, Lond.; Messrs. W. Gaymer and Son, Attleborough.; G. F.

H.—Dr. C. O. Hawthorne, Lond.; Mr. W. F. Hills, Margate; Hull, School Medical Officer of; Hartlepools Hospital, Secretary of; Hospitals and General Contracts Co., Lond.; Mr. Henry J. Hibberd, Brockenhurst.

I.—Messrs. Isaacs and Co., Lond.; Islington, Medical Officer of Health of.

J.—Dr. J. S. Jobson, Haslar; Mr. Herbert H. Johnson, Lond.; Mr. H. A. Jones, Lond.

K.—Dr. W. W. Keen, Philadelphia; Kent County Lunatic Asylum Committee, Maidstone; Messrs. Kirby, Beard, and Co., Lond.

L.—Mr. R. Lake, Lond.; London Dermatological Society, Secretary of; Mr. T. Laffan, Cashel; Miss Le Patourel, Crosby-upon-Eden; Mr. H. K. Lewis, Lond.; Messrs. E. and S. Livingstone, Edinburgh; Livingstone College, Lond., Principal of; Local Government Board, Lond., Medical Officer to; Messrs. Longmans, Green, and Co., Lond.

M.—Mr. R. McKay, Lond.; Messrs. Mather and Crowther, Lond.; Messrs. Macmillan and Co., Lond.; Maltine Manufacturing Co., Lond.; Messrs. J. Maclehose and Sons, Glasgow; Metropolitan Ear, Nose, and Throat Hospital, Lond., Secretary of; Messrs. Z. P. Maruya and Co., Tokyo; Mr. F. H. Martin, Teddington; Dr. B. Myers, Lond.; Manchester Clerical, &c., Association; Dr. Reginald Morton, Lond.; Dr. Charles Mercier, Parkstone; Metropolitan Hospital Sunday Fund, Lond., Secretary of; Medico-Mariners; Macclesfield General Infirmary, Secretary of; Dr. John L. Martin, Chelmsford; Messrs. C. Mitchell and Co., Lond.

N.—New York Pharmaceutical Co.; Mr Edward Nundy, Lond.; Newport (Mon.), Deputy and Acting Medical Officer of Health of.

O.—Dr. James Oliver, Lond.; Mr. C. O'Keefe, Lond.

P.—Messrs. Parke, Davis, and Co., Lond.; Dr. H. Porter, Lond.; Mr. H. M. Phipson, Lond.; Dr. L. J. Picton, Holmes Chapel; Fleet-Surgeon J. H. Pead, R.N., Devonport; Mr. Ernest C. Pronger, Los Angeles, California; Dr. H. C. Pattin, Norwich; Paris, Lyons, and Mediterranean Railway, Lond.

R.—Dr. H. B. Rygate, Leiston; Registered Nurses' Society, Lond.; Royal Society of Medicine, Lond., Secretary of; Royal Academy of Medicine in Ireland, Dublin; Dr. R. J. Rowlette, Dublin; Royal Surrey County Hospital, Guildford, Secretary of; R. S.; Dr. F. E. Rainsford, Palmerston; Dr. Vittorio Ronchetto, Milan; Mrs. Aubrey Richardson, Lond.; Royal Society, Lond.; Royal Portsmouth Hospital, Secretary of; Royal College of Physicians of London, Secretary of; Royal Mineral Water Hospital, Bath, Secretary of; Rochester and Chatham Printing Co., Rochester; Registrar-General, Lond.; Registrar-General, Edinburgh; Royal Meteorological Society, Lond.

S.—Dr. Herbert Spencer, Lond.; Lieutenant J. Saffley, R.A.M.C., Rambling Bridge; Dr. J. S. B. Stopford, Manchester; Salford Corporation, Clerk to the; Messrs. W. H. Smith and Son, Folkestone; Stroud General Hospital, Secretary of; S. W.; Major D. M. Spring, Cirencester.

T.—Messrs. Tozer, Kemsley, and Fisher, Lond.

V.—Messrs. J. W. Vickers, Lond.; Mr. George Varley, Minehead; Dr. H. Walter Verdon, Lond.

W.—Mr. H. W. M. Willett, Lond.; Waterbury Chemical Co., Des Moines, U.S.A.; Colonel Cuthbert Wallace, A.M.S., France; Wrexham Infirmary, Secretary of; Warneford General Hospital, Leamington, Secretary of; Williams and Wilkins Co, Baltimore; Mr. C. G. Russ Wood, Shrewsbury; Dr. Mary H. Williams, Colwall; Wisconsin University, Madison, Secretary of; Dr. Neville Wood, Lond.; Welsh Metropolitan War Hospital, Whitchurch, Commanding Officer of; Dr. S. E. White, Lond.; The Worcestershire Newspapers and General Printing Co., Worcester, Manager of; Messrs. J. Williams and Son, Bradford.

Letters, each with enclosure, are also acknowledged from—

A.—Messrs. Allen and Hanburys, Lond.; A. G. R. H.; Alexander Therapeutic Institute, Lond.; Addenbrooke's Hospital, Cambridge, Secretary of.

B.—Mr. E. Bromhall, Manchester; Bolton Infirmary, Secretary of; Mr. M. Boddy, Richmand; Messrs. Burt, Boulton, and Haywood, Lond.; Mr. W. Baird, Glasgow; Mr. C. Brown, Sevenoaks; Birmingham Corporation, Treasurer to the.

C.—Co-operation of Temperance Male and Female Nurses, Lond.; Captain J. F. Creighton, France; Messrs. Crossley and Co., Lond.; Messrs. Clay, Paget, and Co., Lond.; Dr. P. J. Cremen, Cork.

D.—Mr. P. D. Daly, Ballinrobe; Dr. T. B. P. Davies, Milford Haven; Dr. H. Davies, Lond.; Dr. A. T. Davies, Lond.; Mr. W. Daunt, Hastings.

E.—Essex County Council, Chelmsford, Clerk to the.

F.—Miss H. FitzGibbon, Brighton.

G.—Dr. H. B. Gladstone, Lond.; Glasgow Corporation, Treasurer to the.

H.—Mr. J. Hague, Northampton; Mr. H. Acton Hall, Rotherfield; Messrs. Heppell and Co., Lond.; Messrs. Hearson and Co., Lond.; Dr. J. Harper, Glasgow; Lieutenant A. W. Hendry, R.A.M.C., France; H. B.; Mrs. Braxton Hicks, Lond.

J.—Joint Counties Asylum, Carmarthen, Clerk to the; J. M. B.; J. K. G.; J. G.; J. B.

K.—Kent County Council, Maidstone, Clerk to the; King Edward VII. Sanatorium, Midhurst.

L.—Dr. J. Liddell, Harrogate; Mr. H. Le Soudier, Paris; Lancaster County Asylum, Clerk to the; Locum, Guildford; Mr. H. H. Lacy, Warwick.

M.—Miss A. J. C. Menary, Lond.; *Midland Counties Herald*, Birmingham, Manager of; Manchester Hospital for Consumption, Secretary of; Mr. T. C. Maxwell, Sierra Leone; Dr. J. McQueen, Cumnock; Drs. Macleod, Marshall, Marsh, Billingshurst, and Murray, Shanghai; Moat House, Tamworth, Medical Superintendent of.

N.—Dr. H. J. Norman, Lond.; Messrs. Neyroud and Sons, Lond., North Lonsdale Hospital, Barrow-in-Furness, Secretary of.

O.—Mr. T. T. O'Farrell, Dublin; Mrs. O'Conor, Southsea.

P.—Miss Perkin, Farnham; Portsmouth Guardians, Clerk to the; Captain A. T. Pitts, R.A.M.C (T.), Lond.; Mr. R. Denison Pedley, Lond.; P. V.

R.—Dr. J. K. Reid, Morton; Mr. J. Randall, Liverpool; Mr. J. Johnstone Redmond, Lond.; Royal Waterloo Hospital for Children and Women, Lond., Secretary of; R. G.; Dr. C. A. Rayne, Lancaster.

S.—Mr. J. Frost Smith, Lond.; Mr. F. L. Simons, Edinburgh; Lieutenant-Colonel C. E. Sunder, I.M.S., Patna; *Shrewsbury Chronicle*, Manager of; Swansea General Hospital, Secretary of; Messrs. W. H. Smith and Son, Lond.; Messrs. W. H. Smith and Son, Birmingham.

T.—Dr. J. N. Todd, Harrogate; Dr. W. W. Thomson, Belfast; Dr. Thorp, Darlington; Messrs. W. Thacker and Co., Lond.

V.—Venner's Electrical Cooking and Heating Appliances, Lond.

W.—Mr. G. H. L. Whale, Lond.; Captain E. C. H. Windeler, C.A.M.C., Maresfield; W. S. S.; Dr. H. K. Waller, Lond.

EVERY FRIDAY. **THE LANCET.** PRICE SIXPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.		TO THE COLONIES and ABROAD.	
One Year	£1 1 0	One Year	£1 5 0
Six Months	0 12 6	Six Months	0 14 0
Three Months	0 6 6	Three Months	0 7 0

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications ... ... } Five Lines and under £0 4 0
Official and General Announcements } Every additional Line 0 0 6
Trade and Miscellaneous Advertisements and Situations Vacant ...

Situations wanted: First 30 words, 2*s.* 6*d.*; per additional 8 words, 6*d.*

Quarter Page, £1 10*s.* Half a Page, £2 15*s.* An Entire Page, £5 5*s.*
Special terms for Position Pages.

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice but is in itself an *additional* advertisement.

Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to advertisements; copies only should be forwarded.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Cheques and Post Office Orders (crossed "London County & Westminster Bank, Covent Garden Branch") should be made payable to the Manager Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to advertisements or subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agents for the Advertisement Department in France—SOCIÉTÉ EUROPÉENE DE PUBLICITÉ, 10, Rue de la Victoire, Paris.